

HARRAT AL-BURMA CAIRN LINE, WĀDĪ BURMA SOUTH CAIRN FIELD, AND HARRAT AS-SAYIYYA K-LINE: A PRELIMINARY REPORT OF THE 2003 SUMMER SEASON OF THE JAFR BASIN PREHISTORIC PROJECT, PHASE 2

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Introduction

The second operation of the Jafr Basin Prehistoric Project Phase 2 (JBPP-2), headed by the author in co-operation with the Department of Antiquities of Jordan, was conducted from 17 August to 31 September, 2003. The specific goal of this season was identical to that of the spring season. That is to bridge the chronological gap between the Layer 4 Late Neolithic (LN) entity and the Layer 3 Early Bronze Age (EBA) entity at Qā' Abū Tulayḥa West (قاع ابو طليحة) (QATW), our main concern in JBPP-1 conducted from 1997 to 2002 (Fujii 1998, 1999, 2000, 2001, 2002a, 2002b, 2003).

For this goal, the following three sites were excavated in the northwestern part of the basin: Harrat al-Burma Cairn Line 1 (حرة البرمه) (HB-CL1), Wādī Burma South Cairn Field (وادي برمه) (WBs-CF), and Harrat as-Sayiyya K-line 1 (حرة السبييه) (HS-KL1). In addition, some other relevant sites and features were briefly examined in order to supplement basic information on the general occupational history of the al-Jafr basin.

The excavations showed that: 1) HB-CL1 is a linear, intermittent combination of pseudo-wall burial cairns (BC-700s) and bridges the chronotypological gap between QATW BC-600s and the K-line; 2) Wādī Burma South cist enclosures, which stemmed probably from the proto-type in the lower Jordan valley, triggered the appearance of pseudo-wall cairn enclosures in the al-Jafr basin; 3) Wādī Burma South Kite-site 2 (WBs-KS2), another component of WBs-CF, provides the first key to the subsistence of the al-Jafr basin cairn entity and can probably be dated to the EBA on the basis of typological affinities with contemporary kites in Negev and Sinai, 4) HS-KL1, one of several K-lines (or locally called *Khaff Shabīb* خط شبيب) thus far identified in the al-Jafr basin, is partly disturbed by a QATW Layer 3 type of large enclosures and, therefore, assignable to a period prior to the EBA III, probably the EBA I-II.

These results, together with a series of surface

examinations at other relevant sites, have enabled us to fill most, if not all, of the hiatus in the QATW chronological sequence. The following is a brief summary of these investigations.

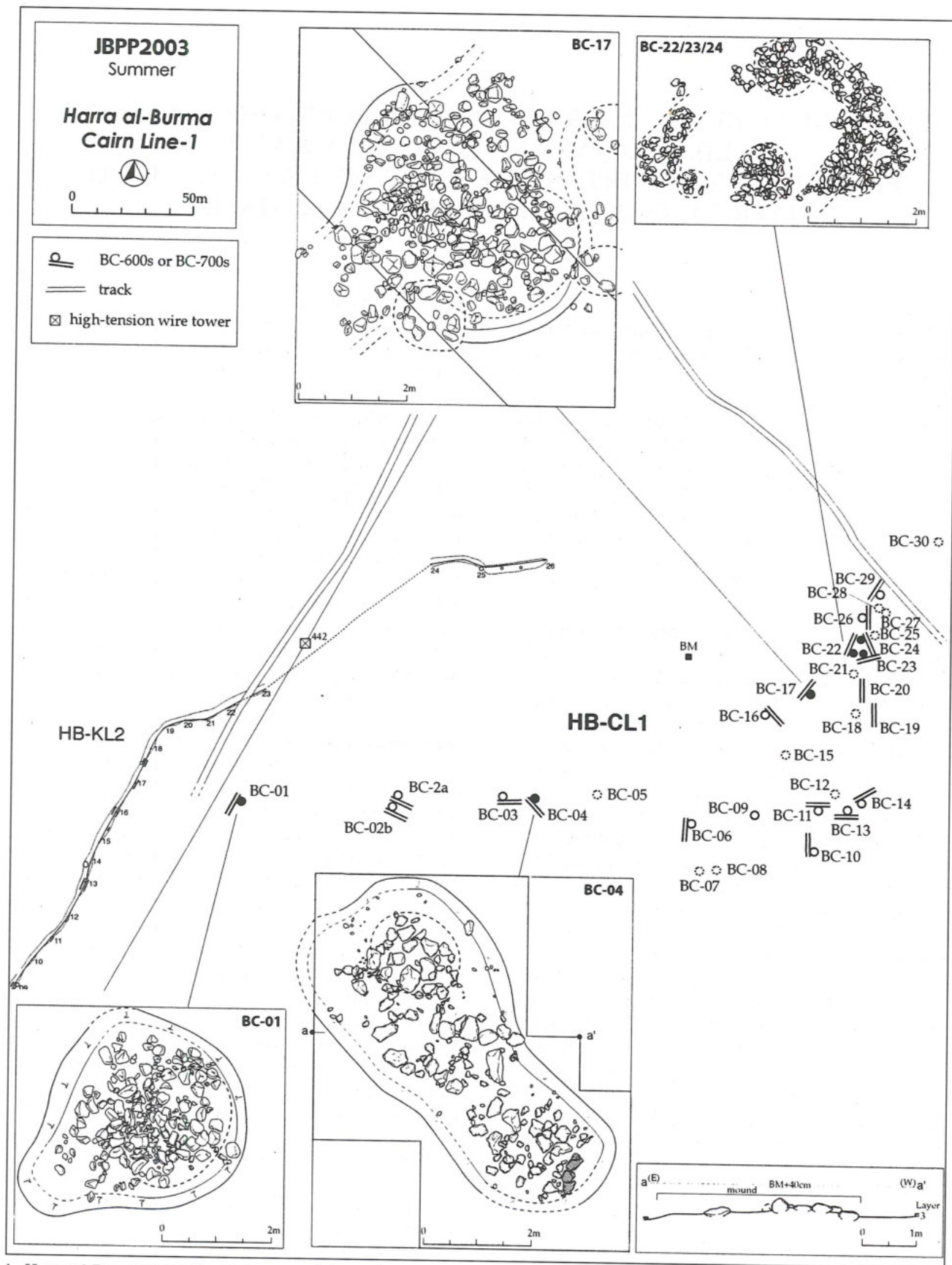
HARRAT AL-BURMA CAIRN LINE 1

HB-CL1 is located on a basalt plain west of Tall Burma, a small volcanic hill ca. 5km northeast of al-Husayniyya, and adjacent to Harrat al-Burma K-line 2 (HB-KL2) that was excavated in the spring season (Fujii 2004a). It consists of a total of thirty pseudo-wall cairns that are aligned in a gentle curve over ca. 300m in total length (Fig. 1). In order to examine the general character of this cairn line, three of them - BC-01, BC-04, and BC-17 - were excavated. In addition, BC-22/23/24, a small cairn complex near the northeastern end of this cairn line, was surface-examined.

Structural Remains

The excavations showed that: 1) because of the unique site setting, only basalt cobbles were used for the construction material; 2) the cairns are based on a low mound ca. 5-10 cm high that overlies the upper surface of Layer 3 of the site stratigraphy; 3) they consist of a circular stone concentration ca. 1-2m in diameter, the main body of a cairn entity, and a straight pseudo-wall ca. 3 - 10m in total length, 4) they were sometimes accompanied with a few small stone concentrations around them.

With respect to the site formation process, one should note the gradual change in size balance between the two major components that constitute a cairn complex. Overall, a cairn loses this balance as it goes eastward; at BC-01, for example, the main body ca. 2m in diameter is paired with a pseudo-wall ca. 3m long, whereas at BC-04, a cairn ca. 100m east of the former, the key feature ca. 1m in diameter is coupled with a pseudo-wall ca. 6m long (Fig. 2). What is important here is that the former cairn can be identified as an example of BC-600s, the final form of the Layer 4 cairn com-



1. Harra al-Burma Cairn Line 1: the general plan and excavations.



2. Harrat al-Burma Cairn Line 1: the general view of BC-04 (from S).

plex at QATW (Fujii 2003). Given this, one may define the latter as BC-700, a subsequent form to BC-600s. These identifications, if acceptable, would suggest that this cairn line was developed from the west to the east. Consistent with this view is the gradual reduction in intervals between any two cairns, which may serve as another support for the intra-site, horizontal stratigraphy from the west to the east.

This site holds a key to the formation of the K-line in various aspects. First, the one-sided extension of a pseudo-wall at BC-700s is the first step to the formation of the K-line, a long chain of pseudo-wall cairns. Second, in contrast to BC-600s, which often leave the narrow space between the two-rowed foundations hollow, BC-700s fill it up with rubble and, in this sense, proceed further to the formation of the K-line. Third, as opposed to the clustering nature of BC-600s, BC-700s are arranged roughly in a line, thus being qualified as a proto-type of the K-line. Fourth, the combination of plural cairns seen at BC-22/23/24, though not linear but at random in connection, is another sign of the appearance of the K-line.

It is therefore reasonable to suppose that BC-600s at QATW were transformed into BC-700s at HB-CL1, which in turn, being connected with each other, led to the formation of the K-line. In this light, small stone concentrations attendant on BC-17 and BC-22/23/24 may be taken for an intermediate form between small mourning pits at QATW BC-600s (Fujii 2003: Fig. 11-14) and small stone concentrations at Ḥarrat al-Burma K-lines (Fujii 2004a).

The Finds

Unfortunately, no *in situ* finds were recovered from the three excavation sectors. To make matters

worse, the finds either on the ground surface or from fill layers were also too exiguous to be a reliable chronological marker. Thus, no clues to the dating of this cairn line can be sought in the finds at the moment.

However, as noted above, a few lines of circumstantial evidence – the appearance of BC-700s, their linear arrangement, and the gradual reduction in intervals between any two cairns – strongly suggests that this cairn line occupies an intermediate position between BC-600s at QATW and the K-line. Highly suggestive in this respect is the inconsistency in cairn orientation at HB-CL1. Importantly, this inconsistency still survives at HB-KL2 but completely disappeared at HB-KL2 (Fujii 2004a). This contrast probably means that HB-CL1 was followed by, first, HB-KL2 and, then, HB-KL1. In this connection, one may also note that these three features are aligned in this order from the north to the south and, at the same time, they increase in total length again in this order. Thus, given that BC-600s is assignable to the later half of the Chalcolithic (Fujii 2003), the next form, HB-CL1, can be dated to the final phase of the Chalcolithic or the beginning of the EBA and the third form, the K-line, to a subsequent period, probably to the early half of the EBA.

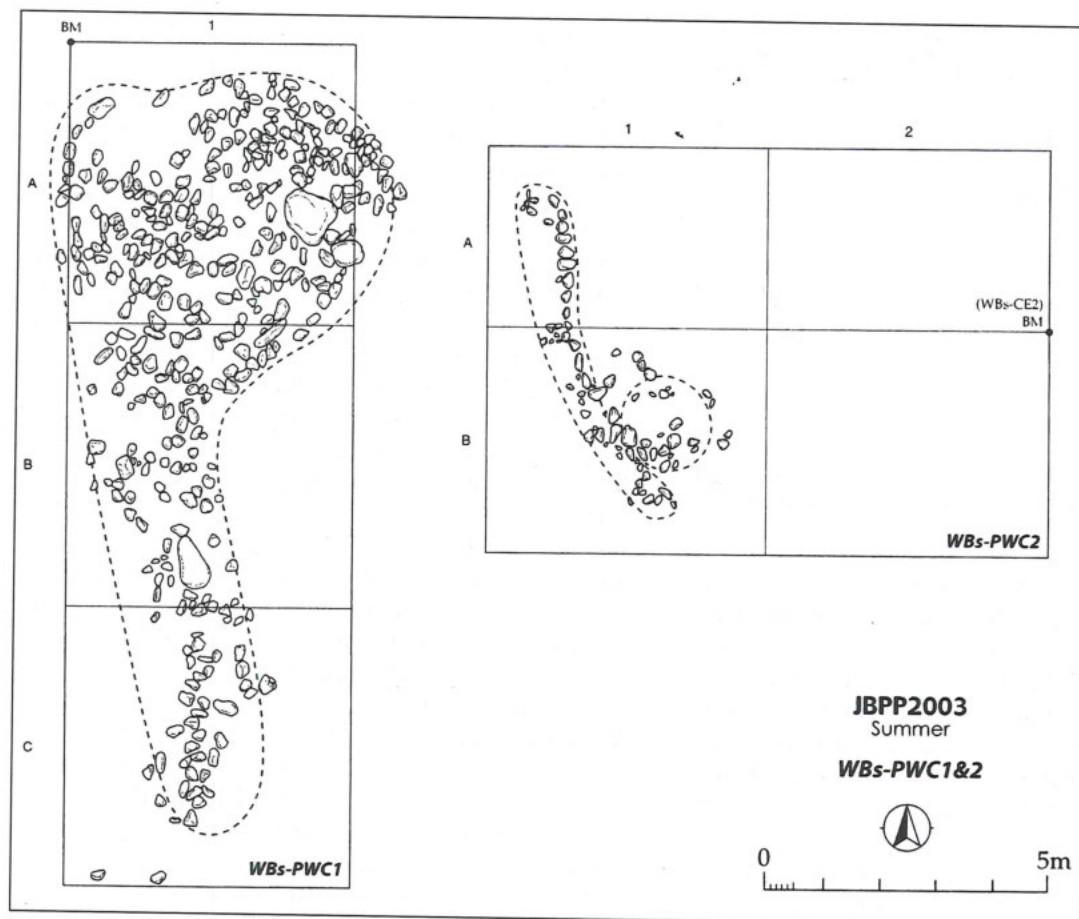
Incidentally, two isolated examples of BC-700s were found in close vicinity to WB-KS2 and WBs-CE2, both mentioned below (Fig. 3). In light of the typological sequence suggested above, both examples seem to bridge the minor gap between BC-600s at QATW and (linearly arranged) BC-700s at HB-CL1.

WĀDĪ BURMA SOUTH CAIRN FIELD

Wādī Burma is one of the uppermost tributaries of Wādī al-Ḥasā and drains northwards encompassing Tall Burma. To date, a few dozen structural remains have been confirmed on its beds and sandbanks (Fig. 4). Topographically (and possibly chronologically), they can be divided into the following two clusters: Wādī Burma North (WBn) and Wādī Burma South (WBs) with WB-KS1 in between. Wādī Burma South, our present concern, includes a total of eight cist enclosures, two of which, WBs-CE1 and -2, were excavated in this season. In addition, WBs-CE4 and -7 were surface-examined.

Wādī Burma South Cist Enclosure 1

WBs-CE1 is a large, stone-built structure constructed on a flat sandbank of Wādī Burma and measures a little more than 30m long in the W-E main axis. Owing to the unique site location, vari-



3. BC-700s in the vicinity of WB-KS2 (left) and WBs-CE2 (right).

ous stones are used for the construction, including limestone, flint, and basalt cobbles with the former two being predominant. The construction material is put in horizontal, or sometime upright positions, on the upper surface of Layer 3 of the site stratigraphy. The excavation, which focused on the western half of this structure, showed that it consists of the following three major components: to list from the west to the east, an oblong cist tomb protected with a large pebble mound ca. 8-10m in diameter, a rectangular platform attached to the cist, and a large, oblong or semi-quadrilateral, walled courtyard with sides ca. 10-15m long (Figs. 5, 6).

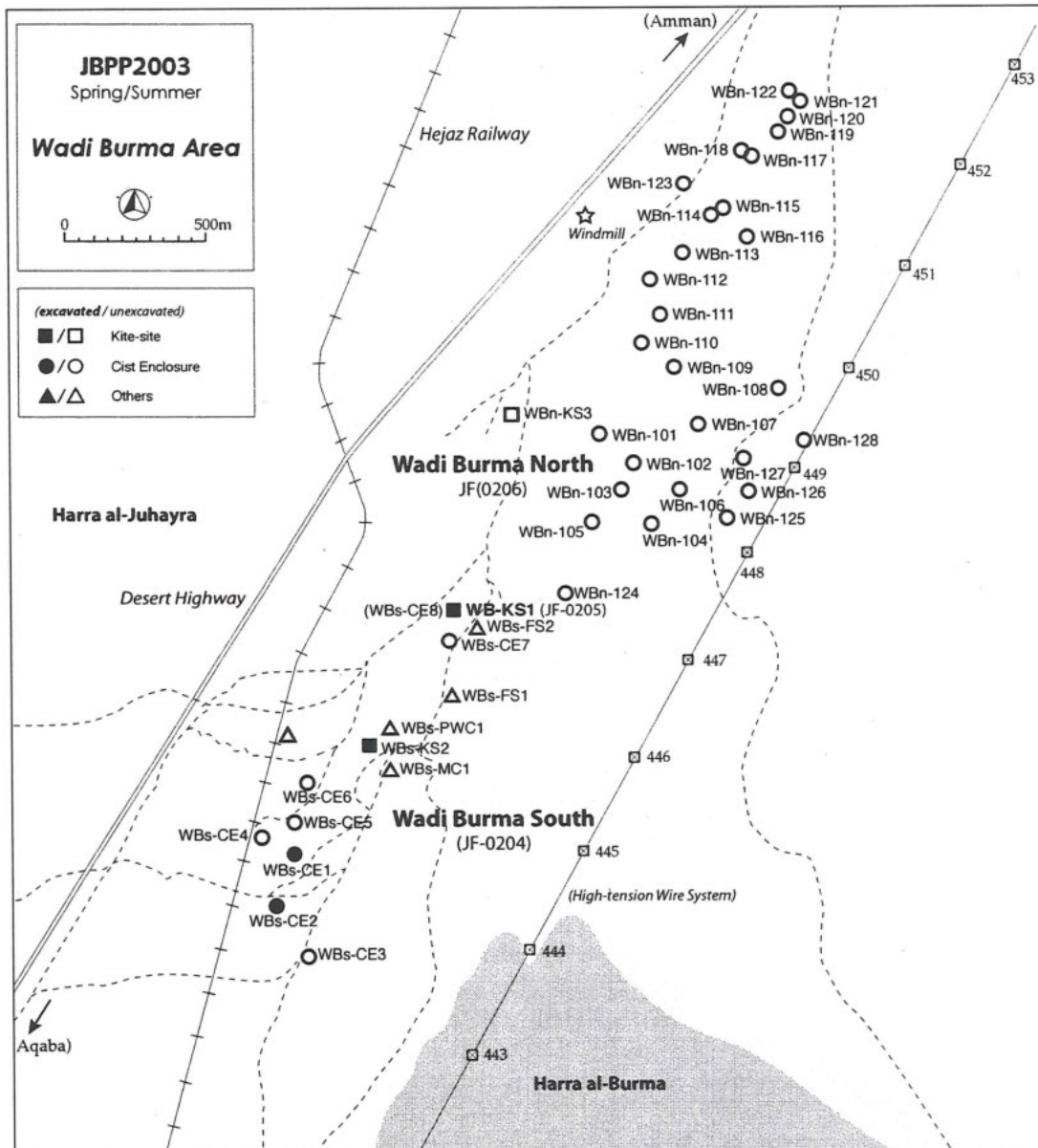
Structural Remains

Before excavation, this structure looked like a natural mound associated with a large enclosure in front of it, but, unexpectedly, it turned out to be an elaborate structural complex. What interested us most is a compact pebble mound up to ca. 1m high, which buries the cist and platform walls nearly to the top course. It is for this reason that this mound gave the impression of a natural rise without any conspicuous features.

On the basis of excavated evidence, the forma-

tion process of this large cist enclosure can be reconstructed as follows: first, the cist tomb and the platform was built on the ground surface of those days; then, both of them were covered with the pebble mound nearly up to the top course of the walls; finally, the large enclosure was attached to them partly running up the mound. This construction order, most likely, mirrors the order of significance of each component. The quality of construction material also follows this order; stones used for the cist tomb, especially those for the foundations, are larger and more standardized than those for the platform, which in turn surpass in quality those for the courtyard wall. From the priority of the cist in every respect and the large-scaled construction of the enclosure comes the nomenclature cist enclosure.

Following the supposed path of flow, a brief description will be made about each component. First comes an entrance to this large structure, which can be sought in a small wall break at the north-eastern part of the walled courtyard. The existence of a pair of short windbreak walls corroborates this identification. What is important here is that the entrance is slightly offset from the W-E main axis of this structure, a trait still inconspicuous until the



4. Site map of the Wādī Burma area.

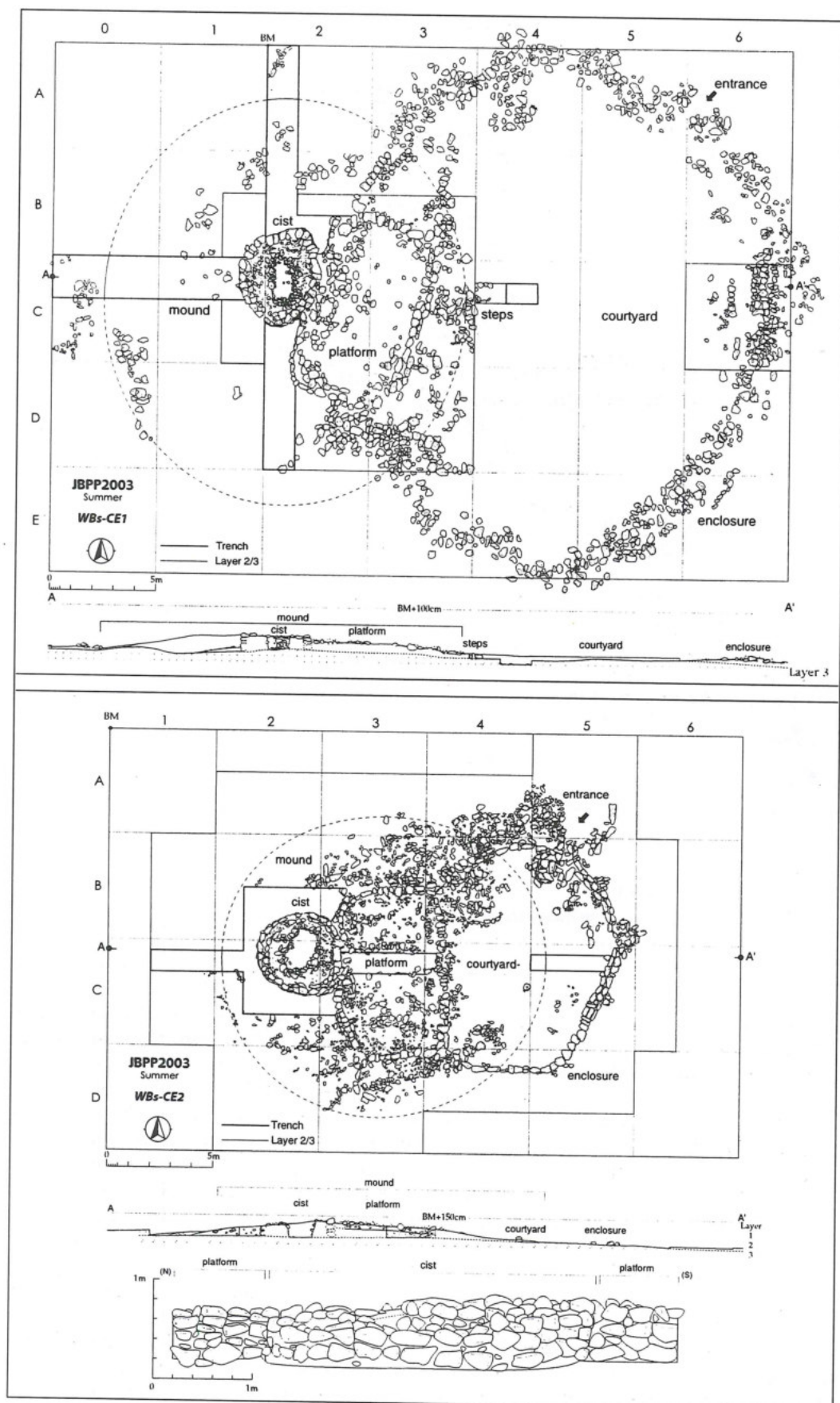
early half of the EBA but further emphasized after the end of the EBA III under the influence of Syro-Mesopotamian culture (Kempinski 1992: 53, 59).

Next comes the large courtyard with the area of ca. 300 square meters. It is noteworthy that, despite the vast area, no remarkable small features are equipped, with the exception of small steps leading up to the platform. What should not be overlooked is that no burial cairns are incorporated into the courtyard wall, a contrast with pseudo-wall cairn enclosures at QATW.

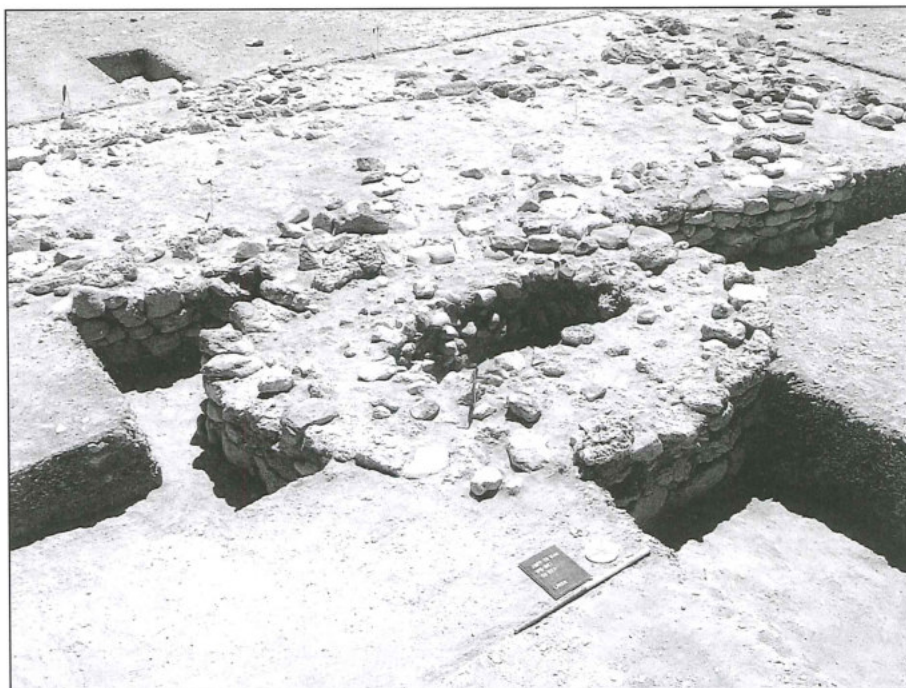
From this courtyard, the small steps guide us up to the platform. It is interesting to note that, unlike the entrance, these steps are in line with the W-E main axis of this structure. In comparison with the

courtyard, this platform is much smaller in size, measuring ca. 8m wide and 5m deep, about one tenth in area. However, an array of traits - the quality of construction material, the elaboration in its arrangement, and the higher location leading to the cist - highlight the significance of this space.

Located behind this platform is the cist tomb, the key feature of this structure. No clear evidence for steps were found, probably because no conspicuous elevation gap exists between the two. Nevertheless, one may note that a narrow gap at the eastern part of the outer wall of the cist might have been used for a small, crouching entrance or an opening for light. Buried with the pebble bank, this cist is still preserved to a height of up to four courses or ca. 1m. It is a double structure, con-



5. Wadi Burma South Cist Enclosure 1 (above) and -2 (below): the plan and elevation/section.



6. Wādī Burma South Cist Enclosure 1: the cist and platform (from NW).

sisting of a small, roughly rectangular cist ca. 1m and ca. 2m in both sides and an oblong outer wall ca. 4m and ca. 5m in both axes, with loose rubble filling in between. In comparison with the outer wall, the cist wall is much less elaborate in construction and built in a simple heaping method using smaller, less standardized cobbles. It appears that the outer wall was built first and then the inner cist wall was additionally constructed, a construction process feasible only for non-corbelled cist tombs.

No clear evidence for an upper structure was found, although rubble and loose soil filling up the cist space might include its remnant. A dozen pottery sherds and several animal bone fragments were recovered from lower fill layers of this cist, but no human skeletal remains were found. It is noteworthy, however, that a small hearth, ca. 20cm in diameter, and a large number of charcoal remains were found nearly at the bottom. Both of them might suggest that some burning ritual had taken place within this cist.

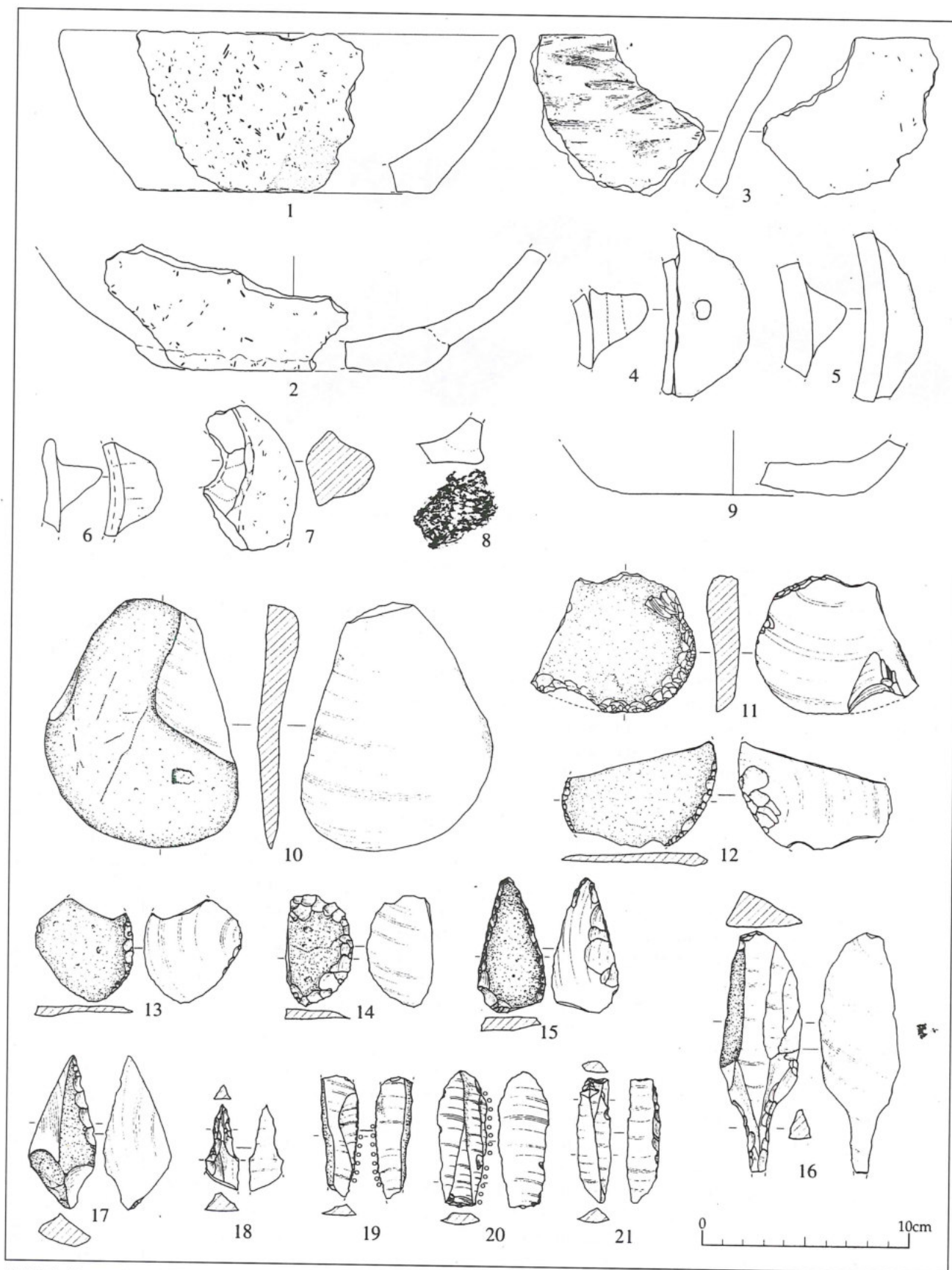
The Finds

The finds from WBs-CE1 are relatively rich in both quality and quantity for a desert site, comprising dozens of coarse ware sherds, a few dozen flint artifacts including some tabular scrapers, a few fragments of stone macehead, several basalt vessels, and a handful of animal bone fragments. It is important to note that most of them occurred from the pebble bank, besides the cist tomb in par-

ticular. This might mean that these finds, being mixed with wadi pebbles used for the construction of the protection mound, were collected by chance. However, both the sharp condition of their edges and the sooted state of their surfaces casts doubt on this view in favor of intentional discarding after some funerary ritual that had taken place in advance of the construction of the mound. The uniformity of the finds also supports this assessment.

The pottery sherds bear many technological affinities with samples from QATW enclosures, including poorly controlled firing, heavy tempering of grit and chaff, relatively thick walls, rough surface treatment, dark surface color, and essential lack of surface decoration (Fujii 2002a: 33, Fig. 19). To date, the following two pottery shapes have been identified: shallow bowls with a slightly incurving wall (Fig. 7: 1, 2) and a bowl with a large flat base and a slightly flaring wall (Fig. 7: 3). In addition, several ledge handle and base fragments have been found (Fig. 7: 4-9), the latter of which include a unique sample bearing a wicker print on its lower surface (Fig. 7: 8). These sherds were often found in sooted condition, suggesting that they were subject to fire in use.

The flint artifacts are relatively small in number, including some tabular scrapers (Fig. 7: 10 - 15), a tanged knife (Fig. 7: 16), a QATW point made on a cortical, split blank (Fig. 7: 17) (Fujii 2000: Fig. 10), a distal fragment of a drill bit (Fig. 7: 18), and some blades with or without sickle sheen (Fig. 7: 19 -21). It is important to note that



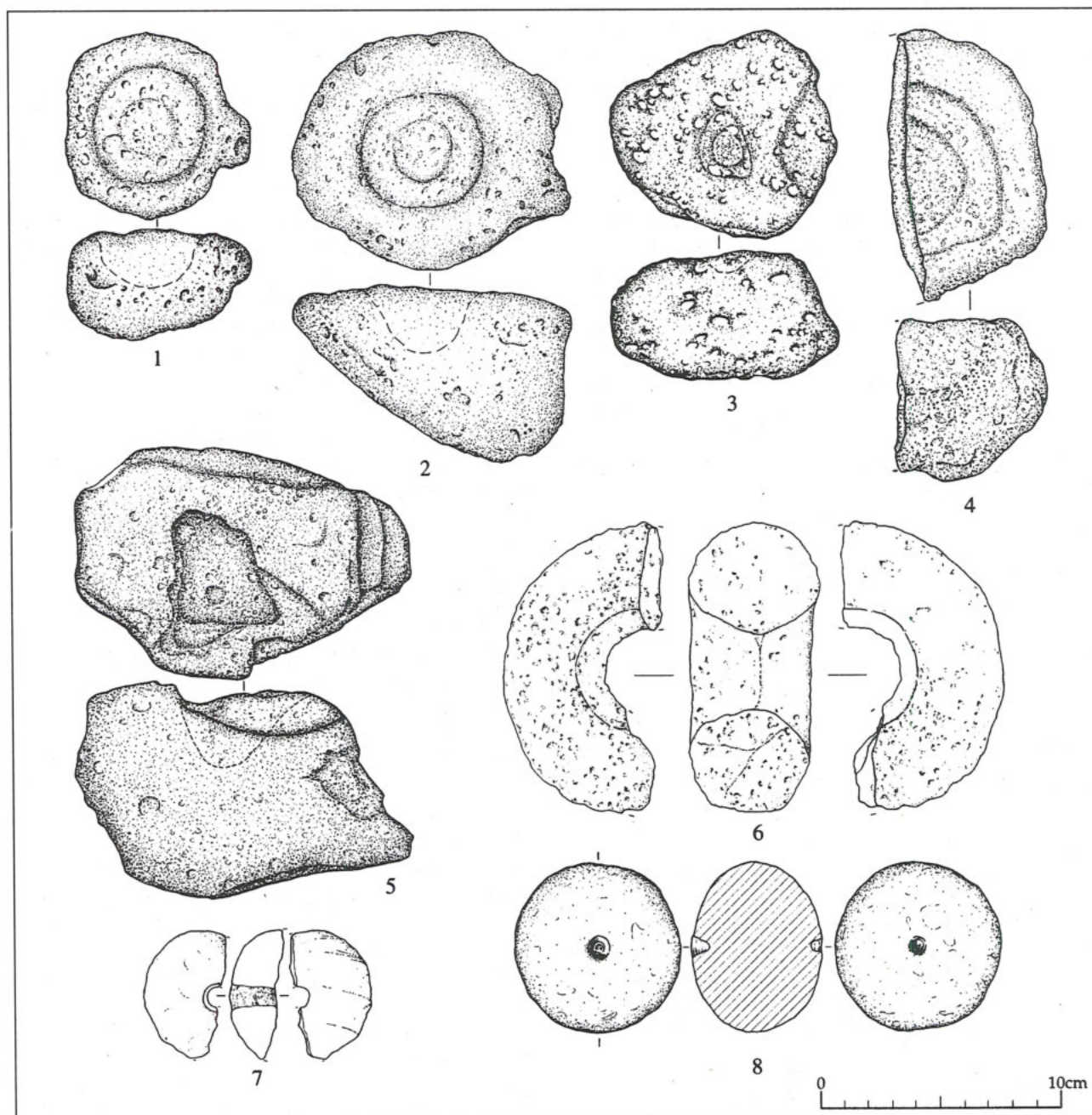
7. Wādī Burma South Cist Enclosure 1: the pottery and flint artifacts.

this flint assemblage bears two distinct aspects. The occurrence of some tabular scrapers and a QATW point attests to the close relation to the flint assemblage from pseudo-wall cairn enclosures at QATW. On the other hand, the occurrence of slender sickle blades contrasts well with the QATW assemblage, suggesting some contact with the Canaanite blade technology.

What marks the finds from this cist enclosure most is small vessels made of porous basalt pebbles (**Fig. 8: 1-5**). They have a relatively deep depression in the center of the flat upper surface and

a single, small knob handle at the rim. As is the case of pottery sherds, they were often found in sooted condition, possibly implying their use as lamps for funerary ritual. Parallel examples can be seen at Jāwā, for example, although they are usually larger in size and higher in quality than our samples (Helms 1981: Fig. B10; Betts 1991: 154-156, Fig. 187).

The macehead forms a minor class, consisting merely of a half fragment made of porous basalt (**Fig. 8: 6**), a half fragment made of limestone (**Fig. 8: 7**), and a complete, but half-finished prod-



8. Wādī Burma South Cist Enclosure 1: the groundstone artifacts.

uct made of limestone (**Fig. 8: 8**). It seems that the absence of complete products, or rather the presence merely of half fragments and unfinished products, is rather the norm for maceheads from burial installations in southern Levant (Fujii 2002a: 33).

In addition, a handful of animal bone fragments were found. Since the examination is still in progress, no specific comments can be made, except that most of them derive from small- to medium-sized animals and were often found in heavily fragmented and sooted condition.

Wādī Burma South Cist Enclosure 2

WBs-CE2 is located ca. 250m SSW of WBs-CE1 with a few small wadis in between (**Fig. 4**). It is smaller in size, measuring ca. 20m long in the W-E main axis. This cist enclosure was fully excavated.

Structural Remains

WBs-CE2 shares many basic traits with WBs-CE1, including the location at a sandbank, construction material, tripartite constitution, W-E general orientation, and slightly offset location of the entrance (**Figs. 5, 9**). There is no doubt that both structures followed the same standard.

What differentiates the two is the proportion among the three major components; it is extremely imbalanced at WBs-CE1 but well balanced at WBs-CE2. This, coupled with the westward retreat of the cist tomb within the pebble mound, causes the compact appearance of WBs-CE2. Another contrast is the general plan of the courtyard; while it is semi-quadrilateral at WBs-CE1, it is pentagonal at WBs-CE2. However, this does not seem to make any essential difference, because the courtyard plan depends partly on the way it is connected



9. Wādī Burma South Cist Enclosure 2: the general view (from W).

with the platform. In this respect, it is important to note that the courtyard wall of WBs-CE2 terminates halfway and is joined to the facade of the platform. It is merely for this reason that this courtyard has a pentagonal plan.

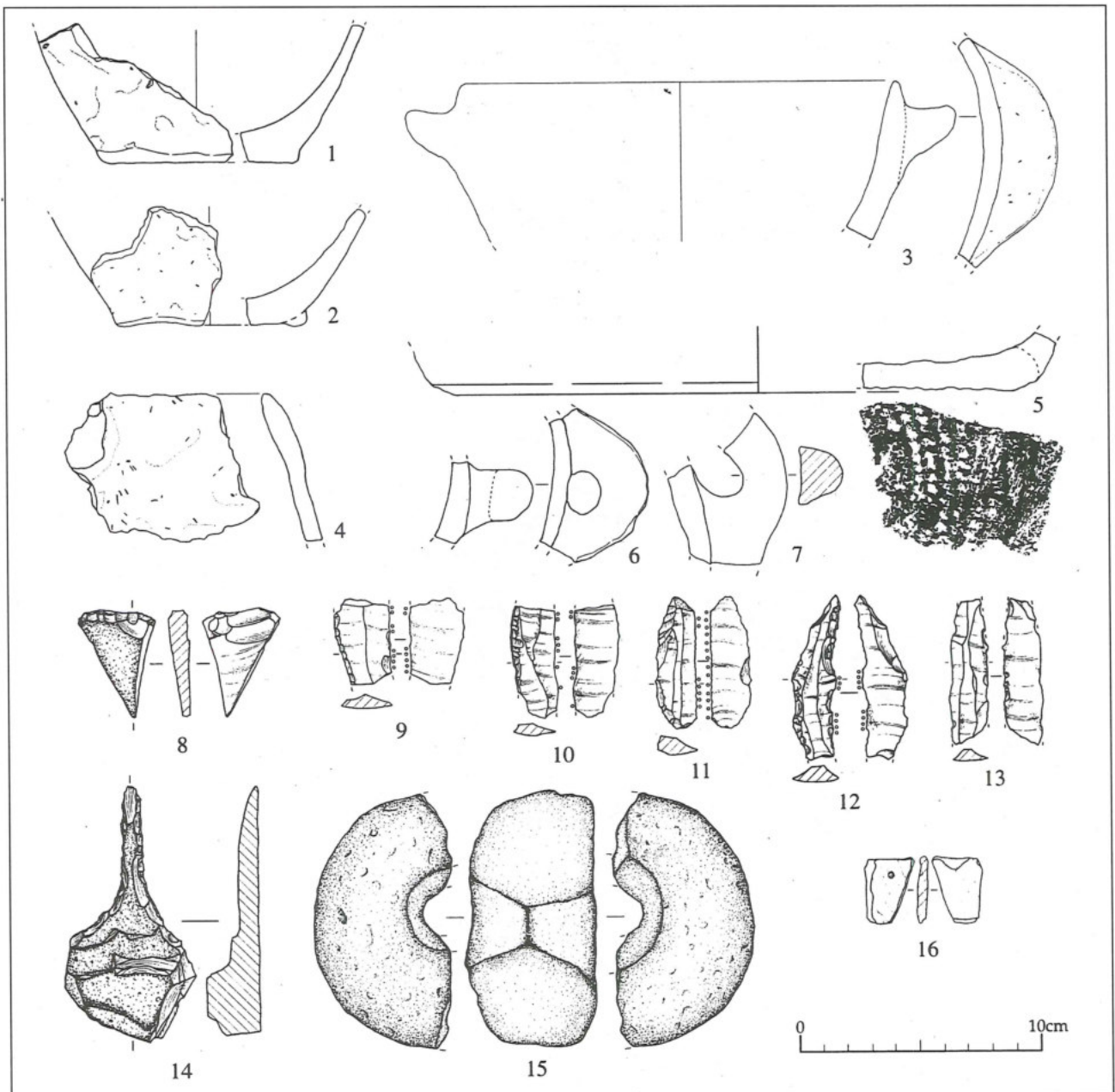
What matters is rather that four corners (or three corners and one side) of these quadrilateral (or pentagonal) courtyards are oriented to the cardinal points of the compass. This practice dates back to the open sanctuary excavated at Biqat 'Uvda 6, a LN ritual site in southern Negev (Avner 1984: 120, Fig. 3: 8; Yoyev 1983; Goring-Morris 1993: 81-82, Fig. 12). This structure can be taken for a proto-type of Wādī Burma cist enclosures in the sense that it has not only a large, quadrilateral courtyard with four corners being aligned with the cardinal directions but also a platform and cist at its western corner. In light of this proto-type, there is no essential difference between WBs-CE2 and WBs-CE1 and both of them follow the same standard. The difference in courtyard plan is merely an expression of the extent to which they were faithful to this proto-type. It should be kept in mind, however, that this typological difference might have some chronological significance.

In addition, a few minor differences exist between the two. First, unlike WBs-CE1, WBs-CE2 is equipped with longer windbreak walls at the entrance. Second, this entrance is paved with limestone slabs and cobbles. One may also note that a larger volume of rubble is used for both the filling of the platform and the coating of the mound.

The Finds

Overall, the finds from WBs-CE2 are analogous to those from WBs-CE1, containing coarse ware sherds (**Fig. 10: 1-7**), flint artifacts (**Fig. 10: 8-14**), basalt and limestone vessels (**Fig. 11: 1-8**), and a half fragment of a limestone macehead (**Fig. 10: 15**). What characterizes the finds from WBs-CE2 is that: 1) a ledge-handled bowl (**Fig. 10: 3**), a flat basin (**Fig. 10: 5**), and a holemouth jar (**Fig. 10: 4**) are added to the pottery shape repertoire; 2) the flint tool kit includes a triangular TSTE (Tabular Scraper Trimming Element) (**Fig. 10: 8**), another hallmark of the QATW flint assemblage (Fujii 2000: Fig. 10); 3) the basalt vessels are generally larger in size and higher in quality; 4) they include a finely-made bowl (**Fig. 11: 7**) and a miniature bowl (**Fig. 11: 8**) as well as the standardized products (**Fig. 11: 1-6**); 5) these artifacts are less frequently sooted.

In addition to these major classes, the finds also include a limestone quern (**Fig. 11: 9-10**) and a trapezoidal shell pendant (**Fig. 10: 16**). The oc-



10. Wādī Burma South Cist Enclosure 2: the pottery, flints, and other finds.

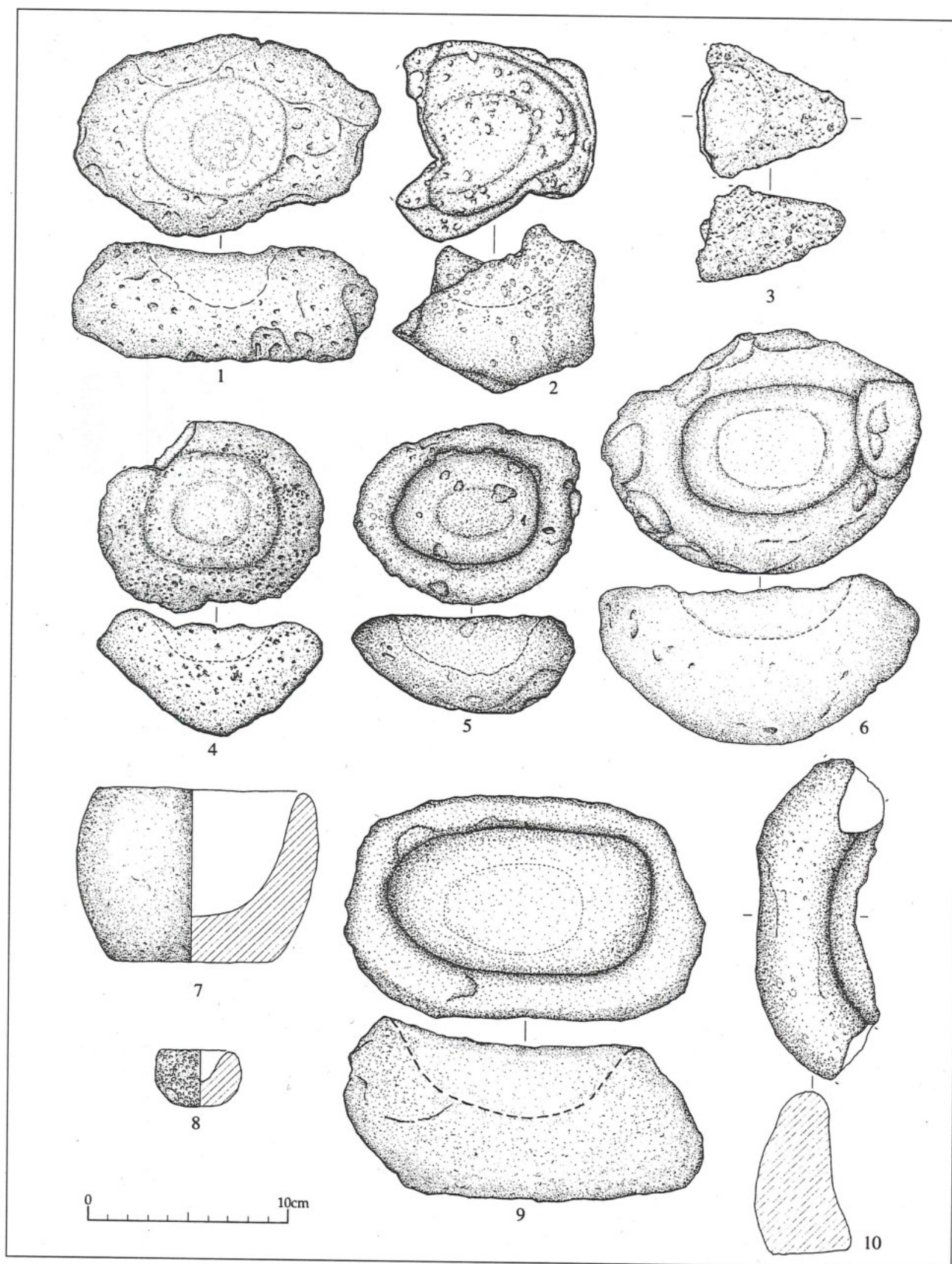
currence of the pounding tool is in line with that of sickle blades (Fig. 10: 9 -13), suggesting some relation with agro-pastoral societies to the west. The occurrence of a shell pendant, on the other hand, is indicative of some contact with coastal regions to the south, although, in light of the existence of an unfinished hole on one surface, this pendant might have been worked at this site using imported raw material. Parallel examples are seen, for example, at Mesad Aluf, a Chalcolithic site in the northern Negev desert (Levy and Alon 1982: Fig. 10). In addition, a rotary quern was found on the floor, roughly in the center of the courtyard, but it seems

to represent a later contamination.

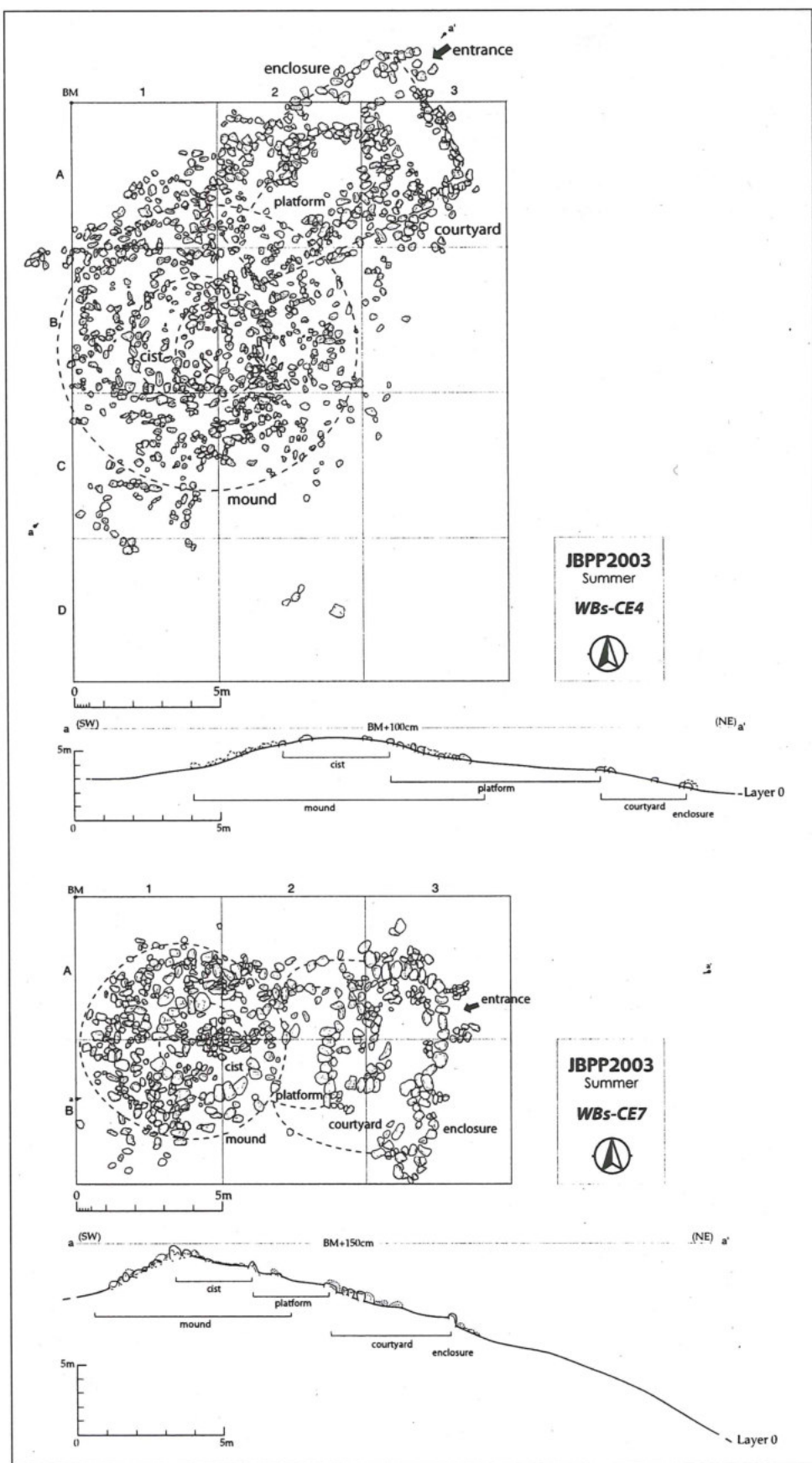
Wādī Burma South Cist Enclosure 4 and -7

In addition to the excavations mentioned above, WBs-CE4 and -7 were surface-examined so as to supplement basic information on the Wādī Burma cist enclosure (Fig. 12).

WBs-CE4 is located ca. 150m northwest of WBs-CE1. The surface examination suggested that: 1) it is relatively small in size, measuring ca. 15m long in the SW-NE major axis; 2) the cist tomb is located nearly in the center of the mound and connected with the southwestern corner of the



11. Wādī Burma South Cist Enclosure 2: the groundstone artifacts.



12. Wādī Burma South Cist Enclosure 4 (above) and Wādī Burma South Cist Enclosure 7 (below): the plan and elevation.

rectangular courtyard ca. 5m and 10m long on both sides; 3) the four corners of this courtyard, the northern and southern corners in particular, are offset from the cardinal directions to some extent; 4) the courtyard contains a curvilinear wall, which might be a deteriorated form of a platform. Overall, this cist enclosure appears to be a deteriorated form of the two excavated examples. In this sense, the typological changes noted above may provide a key to the intra-site chronology of this cairn field. It is my tentative view that the Wādi Burma cist enclosure entity was developed from the south to the north.

WBs-CE7 is a small cist enclosure beside WB-KS1 that was excavated in this spring season (Fujii 2004a). It is still smaller than WBs-CE4, measuring ca. 12m long in the W-E main axis. Here again, the tripartite constitution that characterizes Wādi Burma cist enclosures was attested. It is interesting to note, however, that the courtyard turned by an angle of 45 and, consequently, abandoned the original orientation inherited from Biqat 'Uvda sanctuary, through WB-CE1 and -2, down to WBs-CE4. Overall, this cist enclosure appears to be a still more deteriorated form than WBs-CE4.

Wādi Burma Kite Sites

To date, the following three kite-sites have been found at the Wādi Burma area: WB-KS2 at Wādi Burma South, WB-KS3 at Wādi Burma North, and WB-KS1 in between (Fig. 4). They are arranged roughly in a straight line along the main stream of Wādi Burma at intervals of ca. 600-700m. WB-KS1, the largest of the three, was excavated in the spring season of this year (Fujii 2004a). The summer season was concentrated on the other two, WB-KS2 in particular.

Wādi Burma Kite-Site 2

WB-KS2 is a large-scaled structure extending over wadi beds and sandbanks ca. 600m southwest of WB-KS1. Unlike WB-KS1, it is a typical kite-site that consists of an enclosure and a few long guiding walls converging on it (Figs. 13, 14). Because of the unique site location, the construction material is heterogeneous, including limestone, flint, and basalt cobbles. In order to examine the key feature of this kite-site, a large square was opened at the converging point. In addition, three small trenches were opened along the guiding walls.

Structural Remains

This kite has three intermittent guiding walls that open at an obtuse angle along wadi streams.

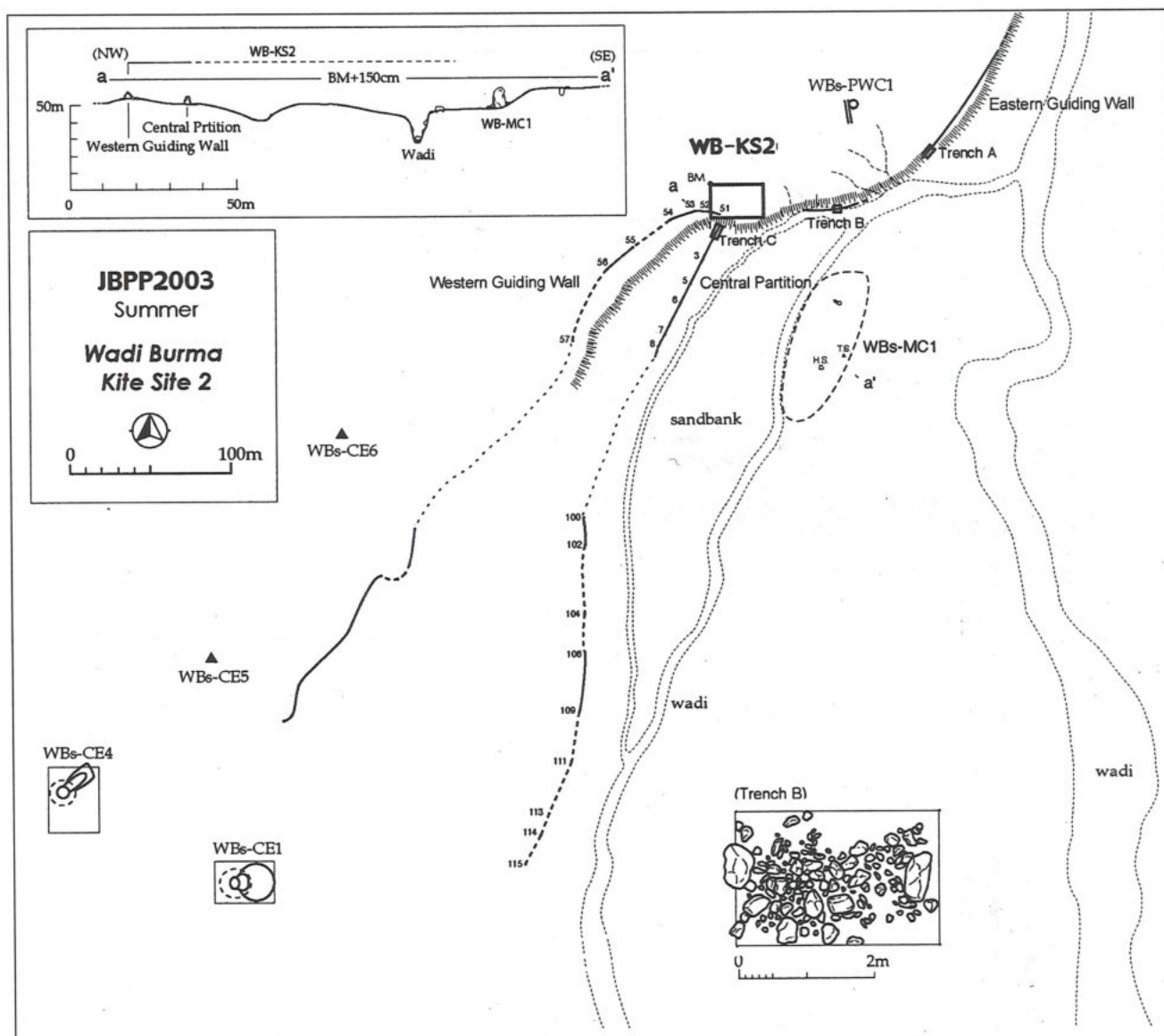
Techno-typologically, they are divided into the following two types. First, the eastern and western walls (ca. 200m and ca. 400m in total length, respectively) are based on the two-rowed cobble foundations and, consequently, relatively large in width (ca. 1-2m). The central wall (ca. 400m long), on the other hand, is less solidly constructed and narrower in width (ca. 0.5m wide). Consistent with this contrast is the volume of fallen stones, which is larger around the former two walls and much smaller around the latter. Another contrast can be seen in the fact that, while the former two walls are located at the edge of a sandbank, the latter alone at a flood plain along a small wadi. All these contrasts strongly suggest that the eastern and western walls were used for the guiding walls in the narrow sense of the word and the central wall functioned as a kind of partition to facilitate the control of a herd driven into the wide-angled hunting ground.

Unfortunately, no clear evidence was found about the key installation on which these three walls are supposed to converge, with the exception of a short wall stretching from the eastern end of the western guiding wall and two narrow corridors, probably hunters' hides, behind the latter wall (Fig. 15). The poor preservation state of the key feature was strange, all the more because the three guiding walls, though intermittently, are relatively well preserved. Suggestive in this regard are several semi-megalithic cairns dotted both in the eastern half of this excavation sector and on the opposite bank (WBs-MC1). The construction of these cairns might account for the disappearance of the original walls of the enclosure. Alternatively, the possibility cannot be ruled out that, as was the case of the capture gates of WB-KL1 (Fujii 2004a), no substantial installations existed here from the beginning.

Whatever the case, the less elaborate construction of the enclosure is noteworthy in that it is rather the norm of the kite-sites in Negev and Sinai in the EBA (Meshel 2000). Both the smaller size and isolated location of this kite also argue for this correlation. In addition, the probable absence of hunters' niches around the enclosure also implies the close relation between WB-KS2 and the EBA kite-sites in Sinai and Negev.

Finds

A handful of pottery sherds and flint artifacts were found from questionable archaeological contexts. Although the pottery finds include some coarse ware sherds similar to the samples from WBs-CE1, most of them are ambiguous in date. The flint artifacts are also heterogeneous in their



13. Wādī Burma Kite Site 2: the plan and elevation.

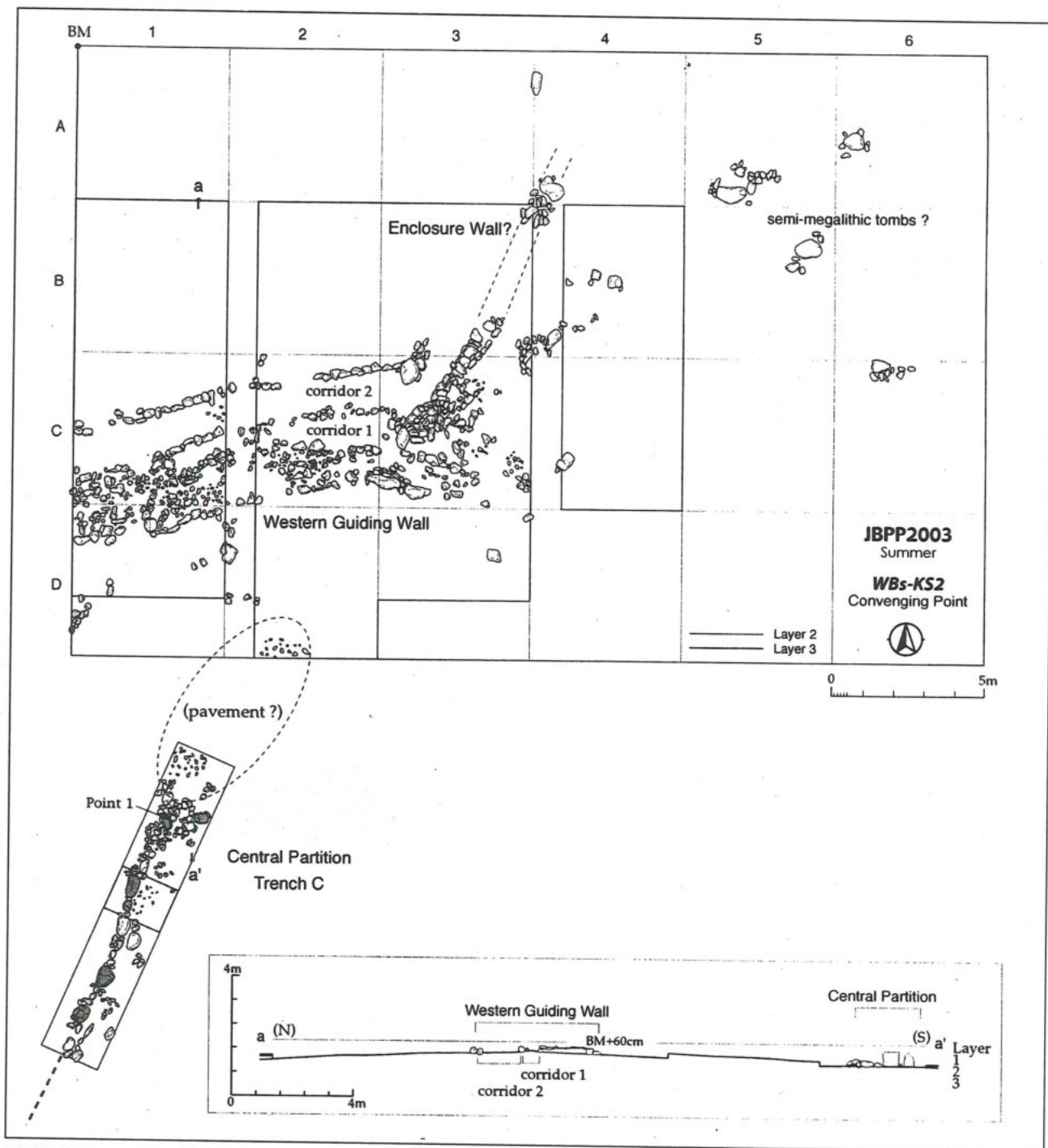


14. Wādī Burma Kite Site 2: the general view (from NE).

content, but the occurrence of a few robust stone hoes is noteworthy in that the frequency of *ad hoc* heavy-duty digging tools was the norm of the EBA sites in the al-Jafr basin (Fujii 2002: Fig. 18). In addition, the finds include a unique artifact made of limestone, which is reminiscent of stone stoppers from Ṭawilān, the type-site of the Iron Age in southern Jordan (Bennett and Bienkowski 1995: Fig. 9. 24).

Wādī Burma Kite-site 3

WB-KS3 is a poorly preserved kite located ca. 700m NNE of WB-KS1. A few, intermittent, curvilinear guiding walls have been confirmed (Fig. 16). The walls contain upright boulders at roughly regular intervals, a common trait to the guiding walls of WB-KS2. Here again, no clear evidence was found



15. Wādi Burma Kite Site 2: the plan and elevation/section of the converging point.

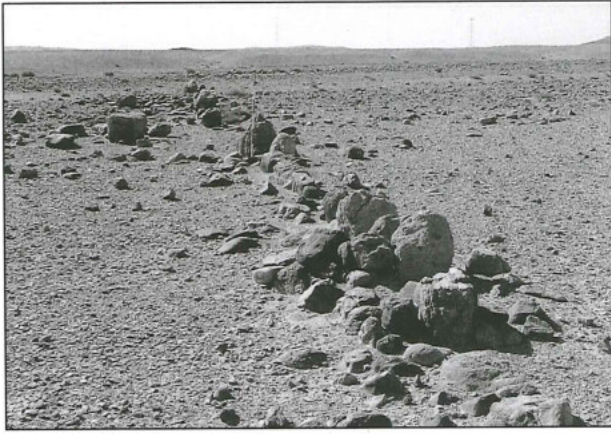
for an enclosure on which these guiding walls are supposed to converge.

HARRAT AS-SAYIYYA K-LINE 1

HS-KL1 is one of the K-lines, or locally called *Khaṭṭ Shabīb*, thus far identified in the al-Jafr basin. It extends from the north to the south crossing the peak of Ḥarrat as-Sayiyya, an isolated limestone hill ca. 8km west of al-Ḥusayniyya. The total

length thus far confirmed is ca. 7km. (The previous report mentioned that this K-line begins from the southern flank of the hill (Fujii 2002c: 47), but a later reexamination has confirmed that it extends further to the north beyond the hilltop, towards the Jabal Juhayra.)

Topographically, HS-KL1 can be divided into five from Segment A to Segment E (Fig. 17). Segment A covers the northern and southern flanks of



16. Wādī Burma Kite Site 3: the general view of a guiding wall (from NW).

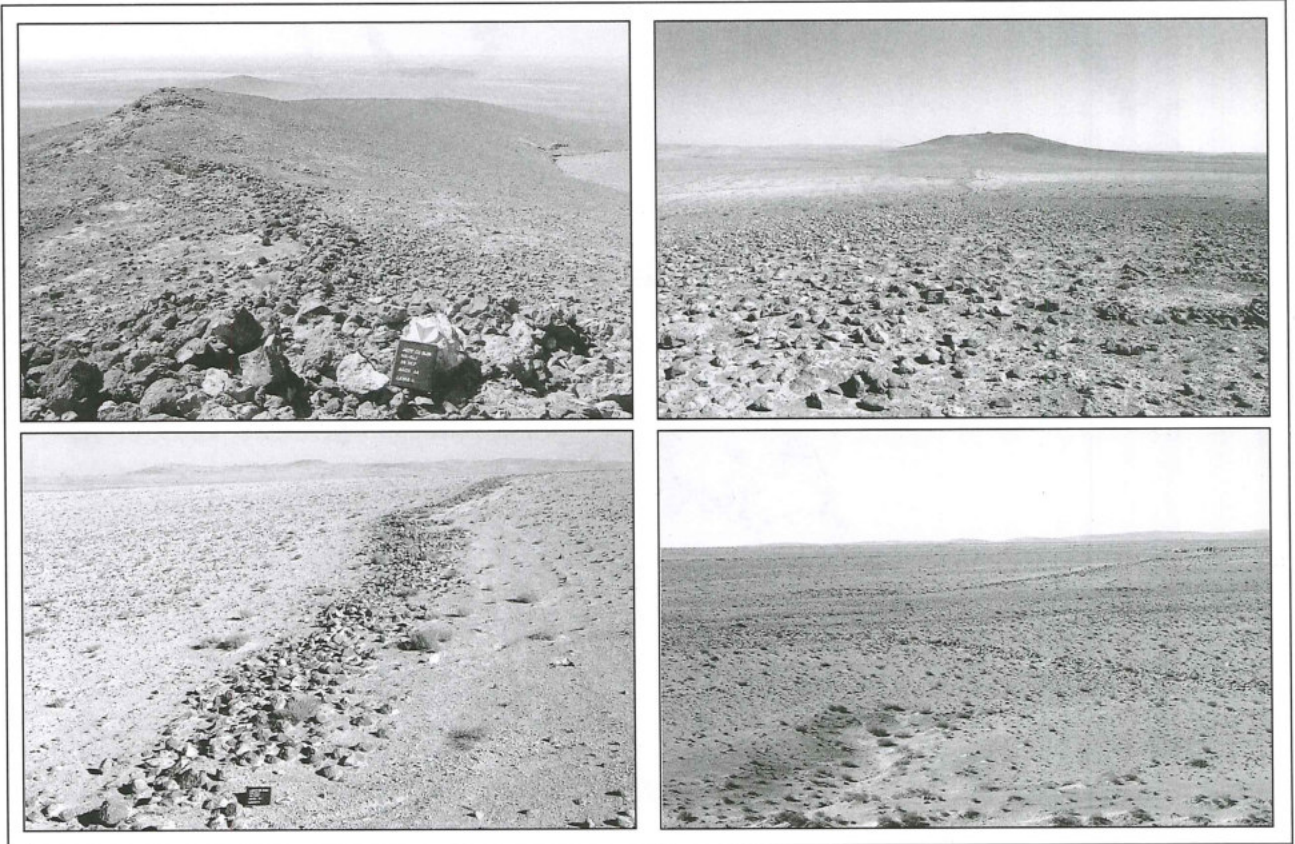
Ḥarrat as-Sayiyya, measuring ca. 2km in total length. Its southward extension is Segment B (ca. 1km long) and Segment C (ca. 1km long), both of which pass through limestone hilly country south of Ḥarrat as-Sayiyya. Segment D is short range (ca. 0.5km long) between a small wadi to the north and Wādī ash-Shawbak to the southeast. Segment E, the southernmost part, stretches over ca. 2km following the southern bank of Wādī ash-

Shawbak. Overall, HS-KL1 is oriented NNE-SSW between Segment A and Segment C. It suddenly changes course in Segment D toward the SE, but returns to the original orientation in the northern half of Segment E. However, at the southern half of Segment E, it is further bent and oriented to the E-W following the course of Wādī ash-Shawbak.

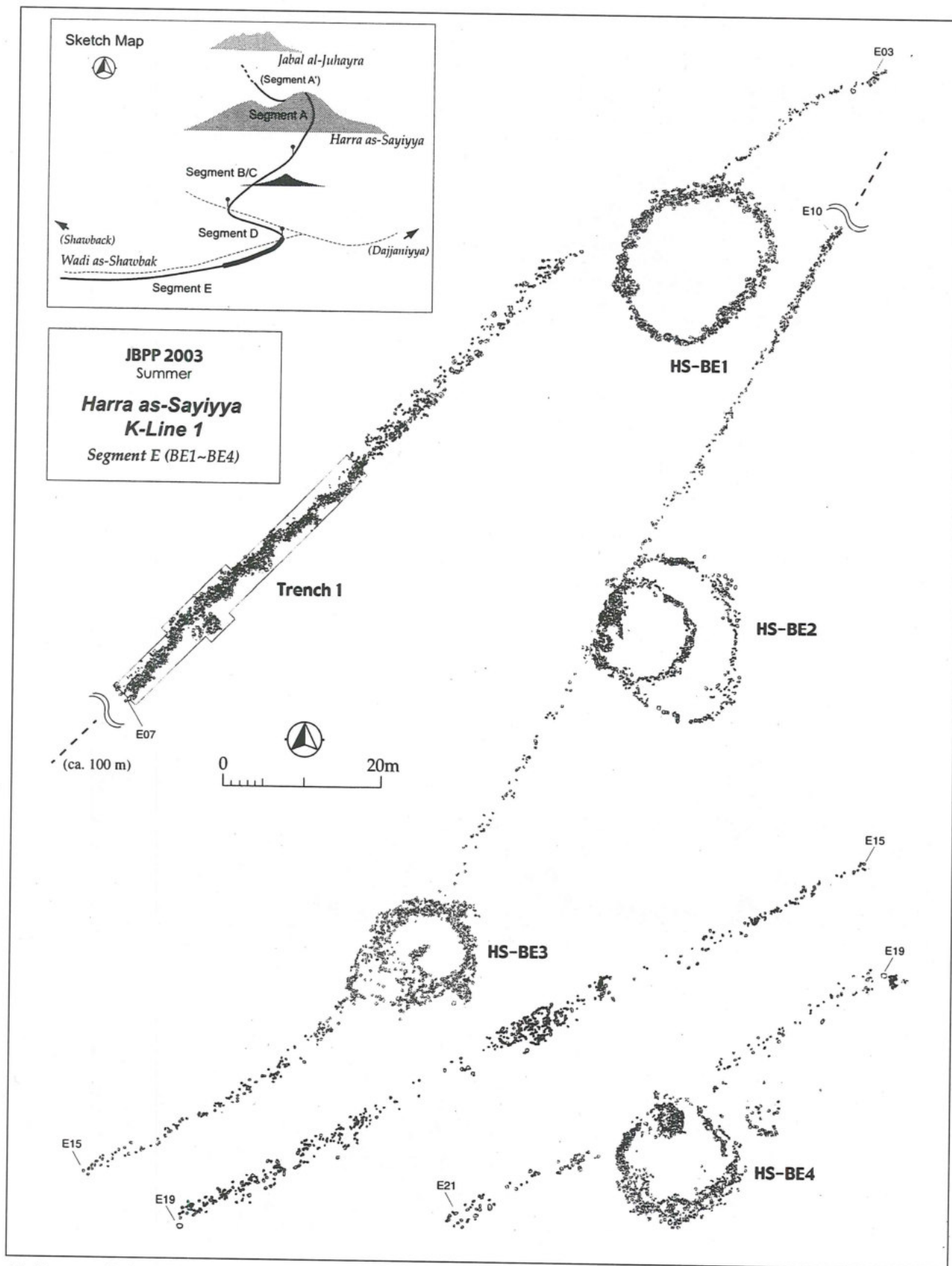
Our investigation was focused on Segment E where several structural remains adjoin the K-line wall (Fig. 18). It was our aim to clarify the order of construction between the two and, on this ground, explore the relative chronology of this K-line. For this goal, two of the four large enclosures, HS-BE2 and -4, were partly excavated focusing on the joint to the K-line wall. In addition, HS-BE2 and -4 were surface-examined to supplement basic information related to the goal. The K-line wall, on the other hand, was examined with a 40m long trench that was opened nearly at the northern end of this segment.

The K-line

This K-line uses limestone and flint cobbles as construction material, but, unlike Ḥarrat al-Burma K-lines, basalt cobbles are rarely found. The ex-



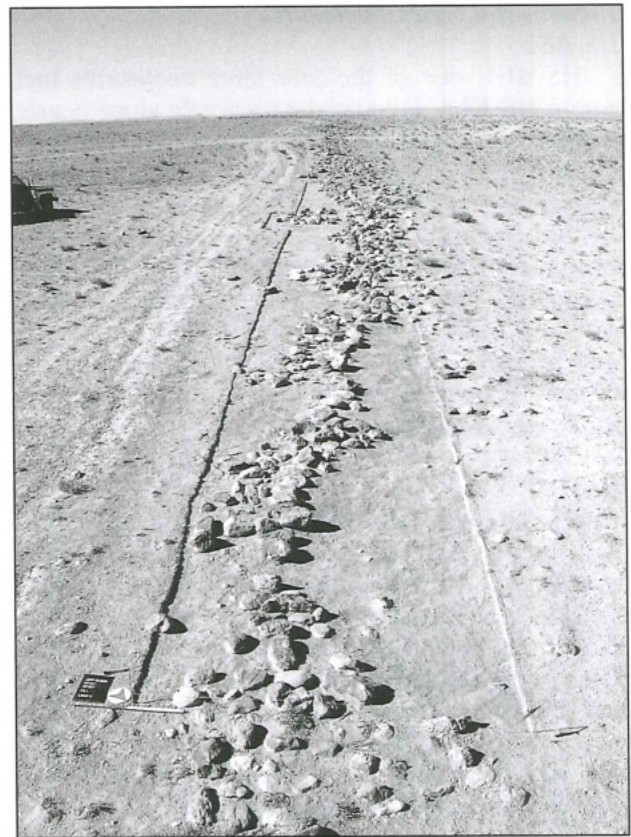
17. Harrat as-Sayiyya K-line 1: 1. Segment A (from N); 2. Segment B (from S); 3. Segment C (from S), 4. Segment D and E (from N).



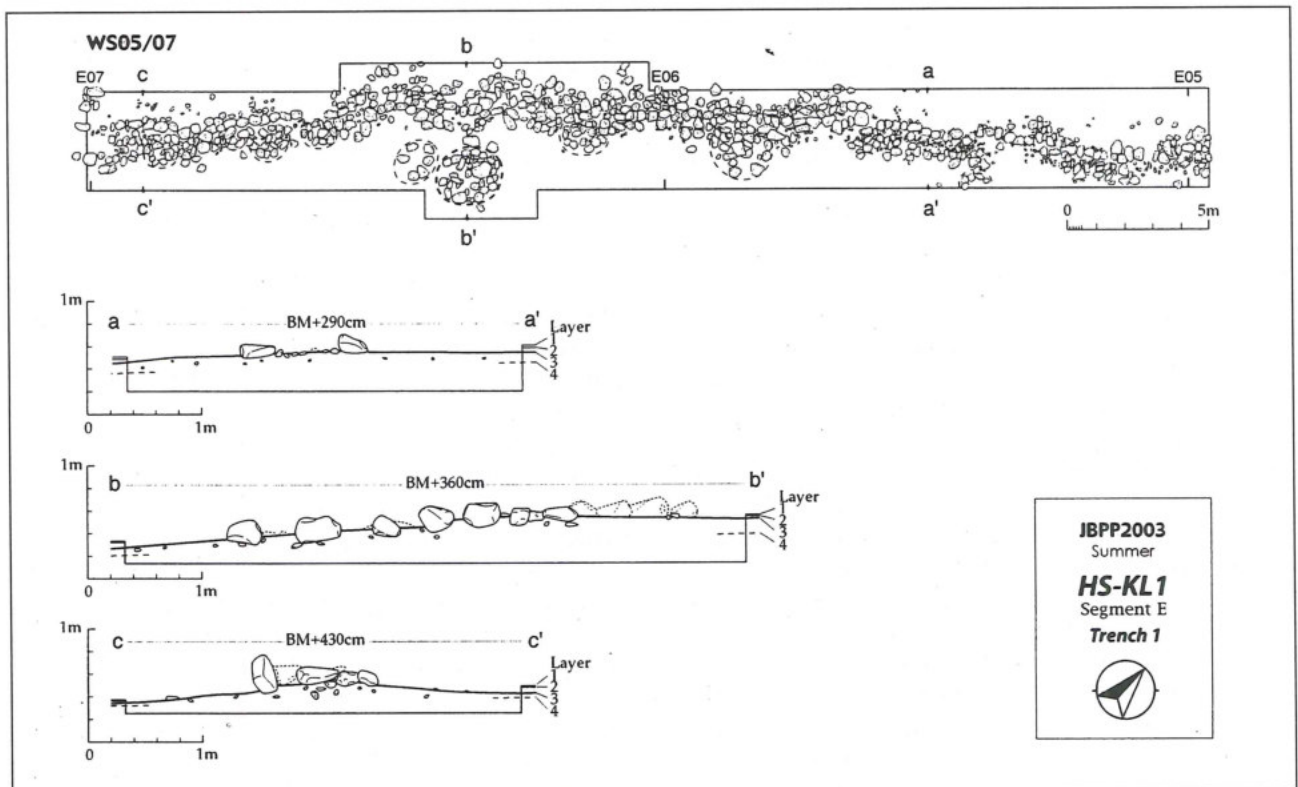
18. Harra as-Sayiyya K-line 1: the K-line wall of Segment E and large enclosures attached to it.

cavation at Trench 1 showed that HS-KL1 has much in common with Ḥarrat al-Burma K-lines (Figs. 19, 20). First, the K-line wall is based on two-rowed cobbles foundations with rubble being filled in between. Second, the wall is accompanied with a large cairn and various stone concentrations. Third, it makes a slight detour around a larger cairn. Fourth, the volume of fallen stones around the wall suggests that the original wall was low in height, probably not more than 1m high. All these traits are common to Ḥarrat al-Burma K-lines, indicating that these three K-lines were constructed following the same standard.

Of particular relevance is the difference in quality and arrangement of construction material among units, which provides further evidence for the gradual, unit-by-unit development of the K-line. In light of the formation process of the K-line suggested elsewhere in this volume, it is likely that HS-KL1 was developed from the north toward the south. What is important here is that a single unit of this K-line is much longer than that of Ḥarrat al-Burma K-lines, probably measuring not less than 30m. This probably explains the reason why this K-line is several times longer than Ḥarrat al-Burma K-lines, although it is needless to say that the other factor, namely, the total number of units, also concerns the whole length of a K-line.



20. Harat as-Sayiyya K-line 1: the general view of Trench 1 (from NE).



19. Harat as-Sayiyya K-line 1: the plan and section of the K-line wall at Trench 1.

Pseudo-wall Cairn Enclosures

HS-BE1

HS-BE1, one of the four large enclosures that adjoin HS-KL1, is located on a gentle slope nearly at the northeastern end of Segment E (Fig. 18). The surface examination suggested that it is a simple, oblong or semi-quadrilateral, stone-built structure ca. 20m long in the NE-SW longer axis and contains a few large stone concentrations, probably burial cairns, along the western wall (Fig. 21). Of particular interest is the fading-out of the K-line wall around this enclosure, which implies the diversion of construction material from the original wall of this K-line to this enclosure.

HS-BE2

HS-BE2 is located ca. 200m southwest of HS-BE1 with a small cairn just in between. It is slightly oblong or semi-quadrilateral in general plan and measures ca. 15m long in the E-W shorter axis and ca. 20m in the N-S longer axis (Figs. 21, 22). Here again, as in the cases of HS-BE1 and Wādi Burma cist enclosures, the key features proved to be located to the west, thus facing east, despite the restriction caused by the orientation of the K-line wall to which this enclosure is attached.

This structure appears to be an intermediate form between Wādi Burma cist enclosures and QATW pseudo-wall cairn enclosures (Fujii 1998: Fig. 8; 2001: Fig. 8). With respect to the basic structure of this enclosure, both the tripartite constitution and the absence of burial cairns along the courtyard wall are common to the Wādi Burma cist enclosure, whereas the lack of a cist tomb and a protection mound around it (and, consequently, the flat appearance of the whole structure) are in line with the QATW pseudo-wall cairn enclosure. The eclectic nature of this enclosure can also be sought in the typology of the key component. Neither cist tomb (which marks the Wādi Burma cist enclosure) nor upright stone wall (which characterizes the QATW pseudo-wall cairn enclosure) exists there; instead, some pit-type burial cairns are aligned at small intervals. Although the presence of pit-type burial cairns is common to the QATW enclosures, yet their concentration on the western corner has something to do with Wādi Burma cist enclosures. The techno-typological eclecticism of this enclosure implies that it is assignable to an intermediate stage between the two.

With respect to the relative chronology of the K-line, a few lines of circumstantial evidence were retrieved. First, as was the case of HS-BE1, the K-line wall fades out around this enclosure, attesting the diversion of construction material from the for-

mer to the latter (Fig. 18). Furthermore, construction material becomes poorer in quality as it goes away from the supposed, original wall of the K-line, another support for the material diversion. Of further significance is the remnant of limestone pebble fillings confirmed along the cairn concentration, which clearly shows that the original wall of this K-line was erased by a later population who were concerned with the construction of this enclosure.

HS-BE3

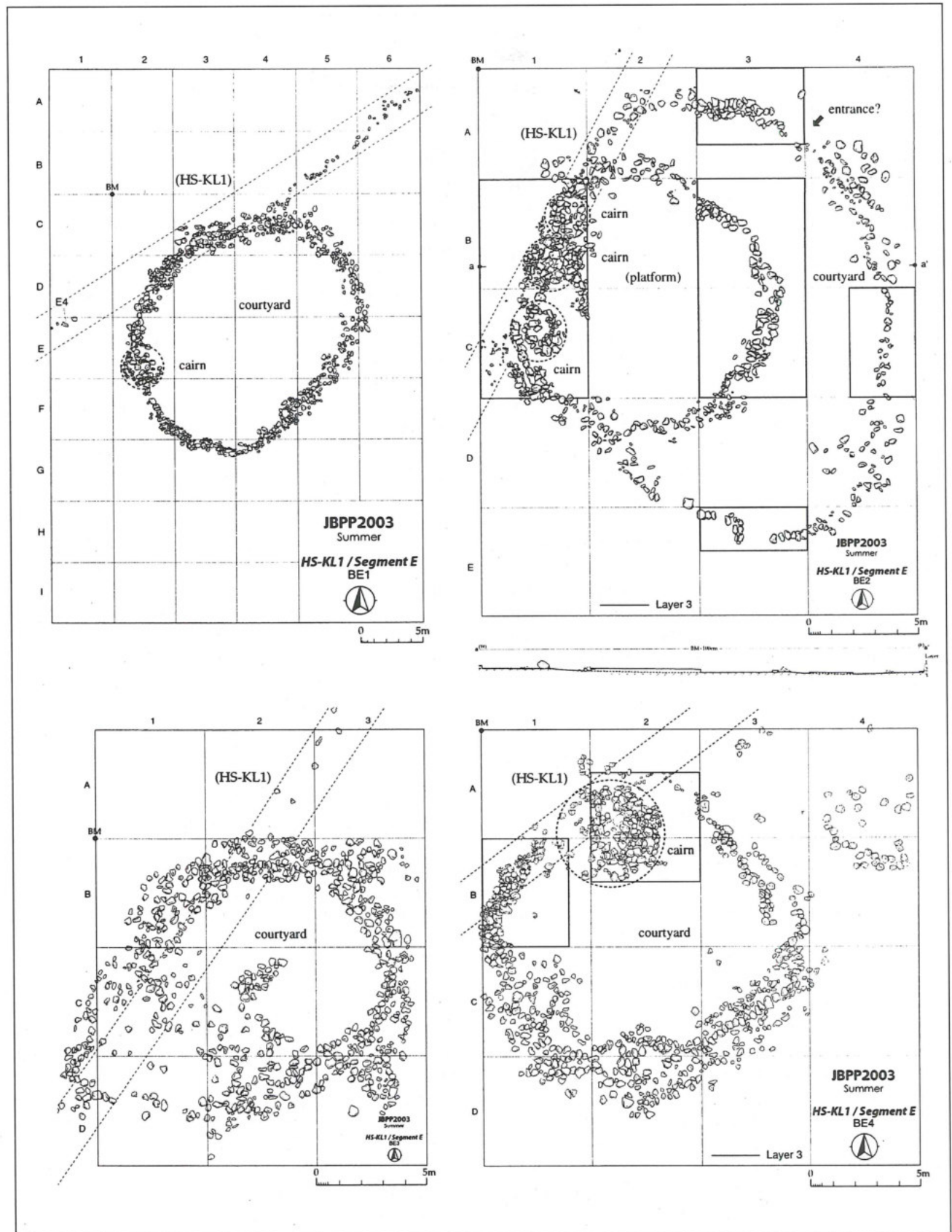
HS-BE3 is located ca. 40m southwest of HS-BE2. It is much smaller in size than HS-BE1 and HS-BE2, measuring ca. 10m long on the NE-SW longer axis (Fig. 21). No clear evidence for the tripartite constitution was found, but this structure proved to contain a semi-quadrilateral courtyard with four corners oriented to the cardinal points of the compass. The surface examination confirmed that, here again, the K-line wall fades out around the enclosure (Fig. 18).

HS-BE4

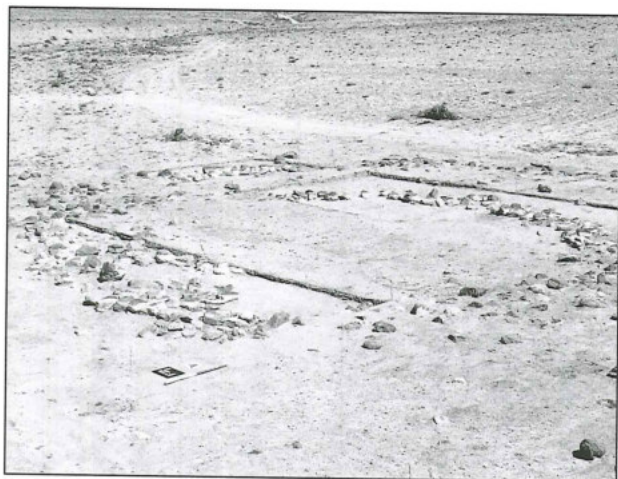
HS-BE4 is the westernmost enclosure thus far identified along HS-KL1, being ca. 150m apart from HS-BE3 with a few stone concentrations in between. This structure proved to consist of a cairn ca. 3m in diameter and a quadrilateral courtyard with four corners oriented to the cardinal directions (Fig. 21). However, no clear evidence for a platform, or an inner courtyard, was found. It is important to note that, unlike the case of HS-BE1 and Wādi Burma cist enclosures, the key feature, the large cairn in this case, is located at the northern corner of the courtyard, thus facing to the south, not the east, a phenomenon suggestive of the oblivion or abandonment of the long-inherited tradition. Here again, it was confirmed that the K-line wall fades out around the enclosure (Fig. 18). Furthermore, a faint remnant of the original K-line wall was also found at the two excavation sectors.

Other Features

A rectangular, single-roomed structure ca. 10m wide and ca. 15m deep was found at the western end of this K-line, near Point E-79. The presence of a small, outward protrusion at the southeastern wall probably suggests that this structure was used for an open-air mosque of Islamic age. In light of the sudden termination of the K-line wall beside this structure, it is reasonable to suppose that it was built diverting the construction material from the original wall of the K-line. Further to the west, ca. 1.2km apart from this structure, lies Khirbat al-



21. Ḥarrat as-Sayiyya K-line 1: the plan of Burial Enclosure 1 (above left) - 4 (below right).



22. Harrat as-Sayiyya K-line 1: the general view of Burial Enclosure 2 (from SW).

Qannās, a well-known Roman/Nabatean site in this region. The construction of this small town and surrounding cemeteries may also be responsible for the disappearance of this K-line.

The Finds

The finds from HS-KL1 and the pseudo-wall cairn enclosures attached to it are quite scarce, consisting merely of a dozen pottery sherds, several undiagnostic flint artifacts, and a pierced stone pendant. To make matters worse, no *in situ* finds are included with the exception of a single, coarse pottery sherd from HS-BE2 that is suggestive of the date of the EBA. Therefore, no reliable clue to the dating of both the K-line and the enclosures is available with respect to the finds.

SUMMARY AND DISCUSSION

As mentioned at the beginning, the objective of this season was to bridge the gap in the chronological sequence at QATW. The focal point was the millenary hiatus between the Layer 4 (LN) entity and the Layer 3 (EBA) entity. From this point of view, a series of excavations reported above will be reviewed, and, on this base, the comprehensive chronology of the al-Jafr basin cairn entity will be briefly discussed below.

Summary of the Excavations

WB-CL1

This cairn line proved to consist largely of BC-700s, a subsequent cairn form to QATW BC-600s and, therefore, be assignable to the end of Chalcolithic or the beginning of the EBA. Typologically, the linear, but intermittent arrangement of BC-700s at this site seems to represent a transitional stage between the dotted arrangement of BC-

600s at QATW and the linear combination of BC-700s at Harrat al-Burma K-lines. The minor gap between the former and the linear, intermittent arrangement of BC-700s at WB-CL1, if any, can be bridged with two isolated examples of BC-700s that were identified in close vicinity to WBs-CE2 and WB-KS2.

WBs-CE1 and -2

A line of evidence suggests that there are close genealogical relations among the three large enclosure entities in the al-Jafr basin: Wādī Burma cist enclosures, Harrat as-Sayiyya eclectic enclosures, and QATW pseudo-wall cairn enclosures. The cist tomb of Wādī Burma enclosures, for example, is equivalent to the cairn concentration of Harrat as-Sayiyya enclosures, which, in turn, is a probable proto-type of the upright boulder line of QATW enclosures.

Interestingly enough, these key features are usually located at the western or northwestern corner of the enclosures and, as a consequence, face east or southeast. This phenomenon is important not only in that it provides another support for the correlation among the three large enclosure entities but also in that it is reminiscent of a general trait shared among many mortuary features in the arid peripheries of southern Levant, including masseboth (Avner 1984: 117, 1990: 133) and various open sanctuaries (Avner 1984: 120; Eddy *et al.* 1999: Fig. 3-33; Rosen and Rosen 2003). (It should be noted, however, that, especially in connection with the summer solstice sunset azimuth, more emphasis has been put on the orientation of the key feature seen from the courtyard. Of particular relevance is the westward opening of the entrance of *Nawāmīs*, pseudo-domed mortuary structure thus far identified only in southern Sinai, which might suggest that our examples should also be viewed from the courtyard (Bar-Yosef *et al.* 1977, 1983, 1986; Hershkovitz *et al.* 1985)).

Another link among the three can be sought in the gradual deterioration of the platform. The platform is one of the key features at Wādī Burma enclosures, whereas it is reduced to either an inner courtyard at HS-BE2 or a simple appendage at QATW enclosures. The same is roughly true of the pebble mound, which distinguishes Wādī Burma enclosures but completely disappears at Harrat as-Sayiyya and QATW enclosures. Taken together, it is now evident that the three types of large enclosures correlate with one another.

The question is the chronology of the three. To date, no specific evidence is available, but the typological sequence note above and the difference

in distribution range mentioned below strongly suggest that the appearance of Wādī Burma cist enclosures was responsible for the formation of Ḥarrat as-Sayiyya eclectic enclosures, which, in turn, led to the occurrence of QATW pseudo-wall cairn enclosures. This chronological sequence, if acceptable, would lead to the conclusion that Wādī Burma cist enclosures and Ḥarrat as-Sayiyya eclectic enclosures are a little earlier in date than QATW enclosures which can be dated radiometrically to the EBA III.

Thus the next question is where the supposed trigger, Wādī Burma cist enclosures, derived from. Suggestive in this regard are the results of our survey, which showed that cist enclosures are concentrated on the northeastern corner of the al-Jafr basin including the Wādī Burma area (Fujii 2002c; 2004b). This means, most likely, that cist enclosures are related more closely to the Wādī al-Ḥasā drainage system rather than the al-Jafr system. In this connection, it is noteworthy that Wādī Burma cist enclosures bear many technological affinities with large enclosures found at some lower Jordan valley sites including Ala-Safat (or ad-Damieh) (Stekelis 1961: Fig.4, 10), the Arab Potash Company township near Bāb adh-Dhrā' (McCreery 1977/78; Clark 1979), el-Adeimeh (Stekelis 1935: Fig. 15), and Nahal Mishmar (Bar-Adon 1980: 12). It is needless to say that the quadrilateral sanctuary at Biqat 'Uvda referred to above is also included in these proto-types. Further evidence for the west-oriented connection of Wādī Burma enclosures can be sought in the occurrence of sickle blades and querns. It seems therefore reasonable to assume that Wādī Burma cist enclosures stemmed from the lower Jordan valley large enclosure entity. On the other hand, Ḥarrat as-Sayiyya eclectic enclosures and QATW pseudo-wall cairn enclosures can best be understood as local imitations of these proto-types that expanded their distribution up to the northwestern corner of the al-Jafr basin probably via the Wādī al-Ḥasā drainage system (MacDonald 1988: Fig. 42) and Wādī al-Karak system (Worshcech 1985, 2002: Abb. 23.1, 23.2).

Returning to the issue of the chronology, this scenario suggests that Wādī Burma cist enclosures can be assigned to an intermediate stage between the lower Jordan valley large enclosure entity (which has long been dated to the Chalcolithic) and the QATW pseudo-wall cairn enclosure entity (that can be dated radiometrically to EBA III). Taking into account some doubt on the dating of the former entity based on obscure evidence (e.g. the proximity of el-Adeimeh to Tulaylāt al-Ghassūl),

on one hand, and the typological affinities between the Wādī Burma cist enclosure and the QATW pseudo-wall cairn enclosure, on the other, the most likely date of the Wādī Burma cist enclosure seems to be a later stage within this chronological framework, namely EBA II or the early half of EBA III, although the final conclusion must await further studies including the radiometric dating now under progress.

WB-KS2

The total absence of datable *in situ* finds and the heterogeneous nature of the surface finds make it difficult to date this kite-site. However, the typological affinities with the EBA kites in Negev and Sinai, along with the general occupational history of the al-Jafr basin, probably argue for the dating to the EBA, although it is impossible at the moment to be more specific about the date within this framework.

This kite-site is important in that, first, it provides the first clue to the subsistence of the EBA pastoral population in the al-Jafr basin and, second, unlike the west-oriented connection suggested by Wādī Burma cist enclosures, it is indicative of some contact with the southwestern drylands, namely, Negev and Sinai.

HS-KL1

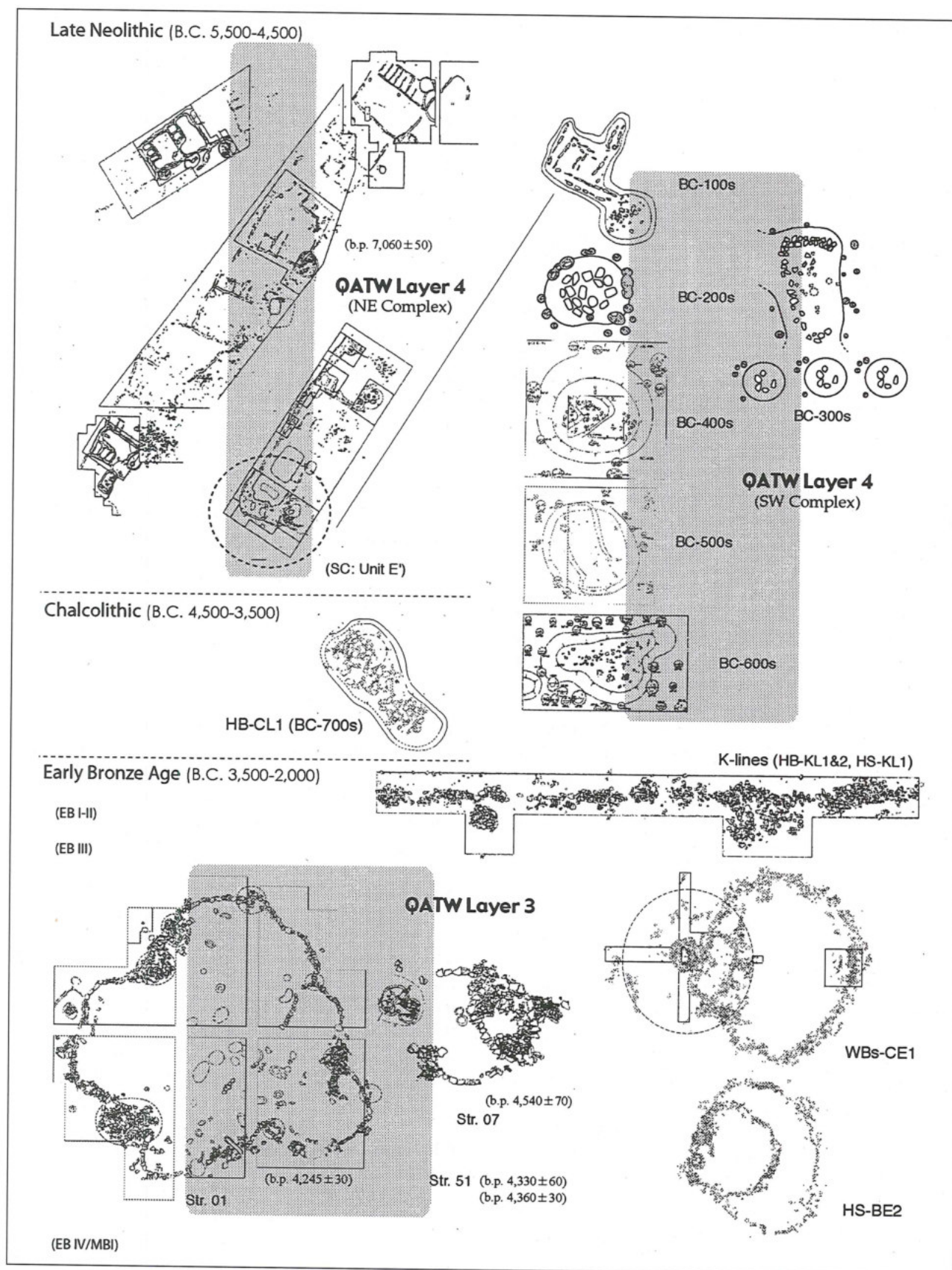
The excavation at this K-line has corroborated the results of the excavations at Ḥarrat al-Burma K-lines (Fujii 2004a). It is now evident that the K-line is a linear combination of pseudo-wall cairns, BC-700s in particular, and therefore of non-daily function related to mortuary ritual.

The question is the date of the K-line. Since no direct evidence is available, the only way left for us is to narrow it down with circumstantial evidence.

In light of the intra-structure of the K-line noted above, the chronological upper limit can be defined with BC-600s, the final cairn form of the QATW Layer 4 (LN) entity. The lower limit, on the other hand, can be sought in the order of construction between HS-KL1 and four large enclosures attached to it. It follows then that the K-line is assignable to the intermediate period between the two, namely the EBA I-II.

Chronological Overview of the Jafr Basin Cairn Entity

Integrating these results into the QATW sequence, the overall picture of the cairn entity in the al-Jafr basin from the LN to the EBA will come into sight (Fig. 23). The transition can be summarized as follows.



23. A tentative chronology of the al-Jafr basin cairn entity.

The al-Jafr basin cairn entity began with the LN pseudo-house cairn at the NE structural complex of QATW, probably as a remnant of under-floor, wall-side burial at PPNB agro-pastoral settlements to the west. Then, with the last unit (Unit E') of this pseudo-settlement as a turning point, they were transformed into independent, pseudo-wall cairns (BC-100s to BC-600s) at the SW complex. It is BC-700s identified in this season at the north-eastern part of the basin that succeeded to BC-600s, the last form of the QATW Layer 4 cairn entity. Of particular interest are BC-700s at HB-CL1 that are arranged roughly in a line. A line of evidence strongly suggests that their linear connection led to the formation of the K-line.

The next turning point was the appearance of cist enclosures that expanded probably from the lower Jordan valley, via the al-Ḥasā drainage system, up to the western edge of the southern Transjordan plateau. It seems that the appearance of this newly-introduced funerary practice induced the dissolution of the K-line and, consequently, led to the formation of pseudo-wall cairn enclosures first, though eclectically, at HS-KL1 and, then, in a fully localized way, at QATW. It should be emphasized, however, that what changed under the influence of the appearance of cist enclosures is merely the way in which pseudo-wall cairns were connected. The local tradition that burial cairns should be accompanied with a pseudo-house or its successive form, a pseudo-wall, and, at the same time, that they should be arranged in a straight line either intermittently or continuously was long inherited among the al-Jafr basin cairn entities.

The mass-production of tabular scrapers, another trait of the al-Jafr basin EBA cairn entity (Abe 2004; Abe and Fujii 2003; Fujii 2003; Quintero *et al.* 2002), can best be understood within this framework. The chronological sequence suggested above implies that the semi-nomadic cist enclosure population, who expanded eastwards under the influence of the urbanization in the contemporary Cisjordan, came into contact with local pastoral nomads in the al-Jafr basin and, as a consequence, incorporated them into the extensive trade network established in the latter half of the EBA. The mass-production of tabular scrapers, which was based on a rich occurrence of raw material in the al-Jafr basin, probably forms a part of this trend. Taking into account the fact that the appearance of middlemen at the Ḥasā area and the establishment of urban customers further to the west triggered off the reactivation of the al-Jafr basin, one may further say that the florescence of tabular scraper production in the EBA al-Jafr basin represents an aspect of inter-

regional specialization as well as the establishment of a wide-ranging trade network including arid peripheries. Likewise, the aforesaid expansion of large enclosure entities over the dry lands in southern Levant, including the al-Jafr basin, seems to be one of specific representations of this far-reaching social reorganization.

Concluding Remarks

The second operation of the JBPP-2 2, combined with the first operation in this spring season, has enabled us to bridge most, if not all, of the chrono-typological gaps of the QATW sequence. This in turn has made it possible to sketch the development process of the early pastoral nomadism in the al-Jafr basin. It is needless to say, however, that further investigation is still needed to fully understand these intricate dynamics. The third operation is due next summer, focusing on the QATW Layer 4 problem, namely, the origin of early pastoral nomadism in the al-Jafr basin. Two relevant sites, Jabal al-Juhayra PPNB small settlement (JF-0116) and Ḥarrat al-Juhayra Late Neolithic pseudo-settlement (JF-0202), are to be excavated.

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