QĀ' ABŪ ṬULAYḤA WEST, 2002
AN INTERIM REPORT OF THE SIXTH AND FINAL SEASON

Sumio Fujii

Introduction

The sixth and final excavation season at *Qā' Abū Ṭulayḥa* (قاع أبو طليحة) West (QATW) was conducted from August 11 through September 26 in 2002, with the kind cooperation of the Department of Antiquities of Jordan. The main goal of this season was twofold: first, to clarify the final phase of the Layer 4, Late Neolithic, burial cairn entity and, second, to explore the flint mining strategy of the Layer 3, Early Bronze Age, composite burial enclosure entity.

For the first goal, a dozen of burial cairns were excavated around the SW Complex. As a result, the long sequence of the Layer 4 burial cairn entity was finally completed. It is an unexpected result of this season that a probable transition from chieftain burial (BC-400s) to lower-class leader burial (BC-500s and BC-600s) – a process of the popularization of cairn burial that took place in the end of the Late Neolithic – was traced with specific evidence.

The second objective, on the other hand, aimed at elucidating the flint procurement strategy for the tabular scraper production at QATW. The intensive excavation at W-06, one of the core concentration areas thus far confirmed at QATW, has revealed that a large number of cortical nodules were mined from an intermittent flint layer that extended ca. 30cm below the ground surface in those days. It has also proved that ancient flint knappers arranged mined raw material in a circle and worked sitting in its center. Further, a line of basic data retrieved from the excavation has provided a reliable base for roughly estimating the total production of tabular scrapers at QATW.

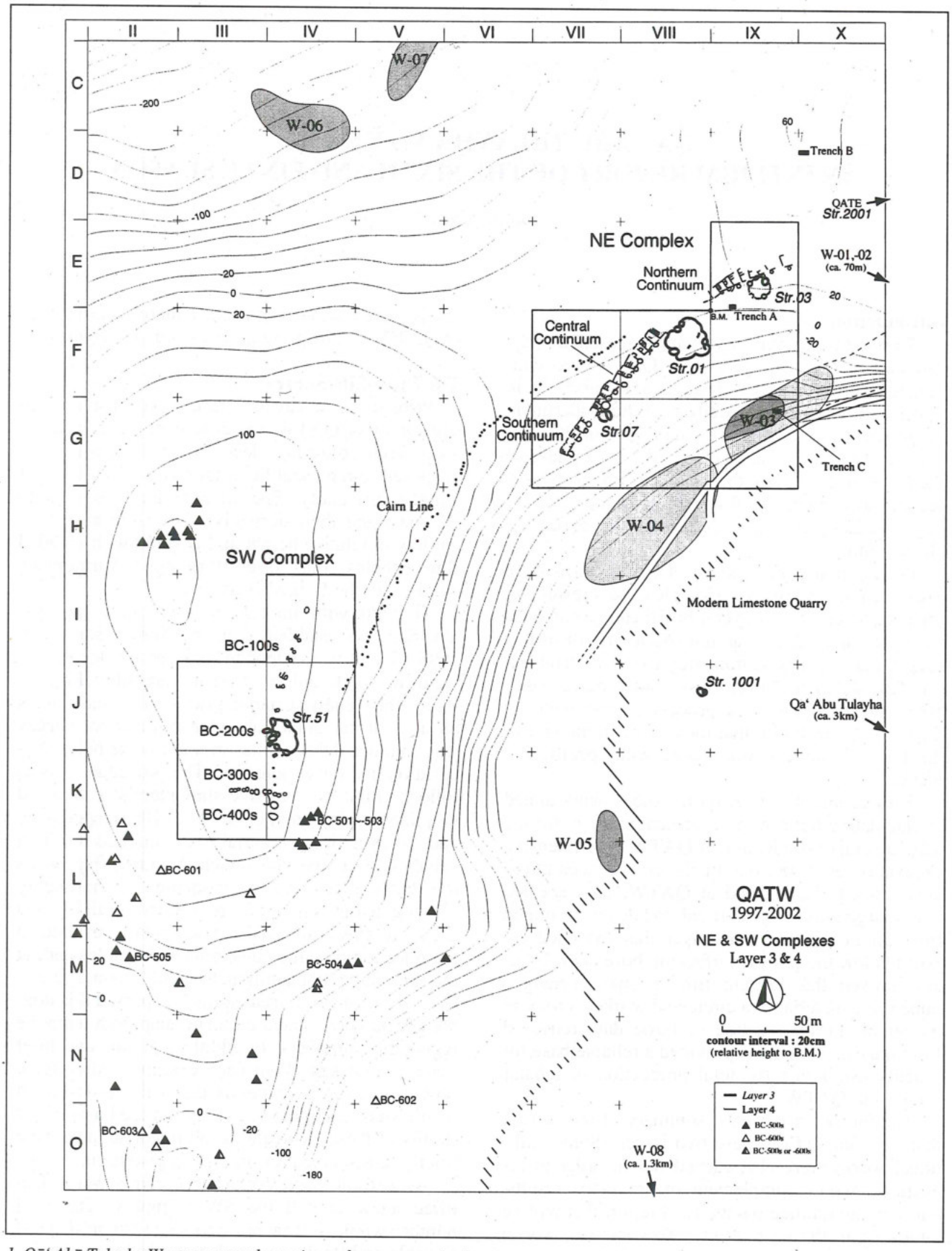
The following is a brief summary of this season that was focused on these two issues (Some additional works were also carried out in order to re-examine and/or complement the previous results, but they are omitted for the final report that will be published in the near future). To conclude, with a view to summing up the results of the six successive excavation seasons, a tentative chronology of QATW will be presented as schematic figures.

The Intra-Site Survey

Prior to the excavation, a comprehensive intra-site survey of QATW was conducted in order to re-locate archaeologically less visible features that are supposed to represent the final phase of the Layer 4 burial cairn entity. Special attention was paid to BC-400s and their derivative forms, because they are low in relative height and covered with abraded flint pebbles, thus often forming a harmonious whole with the Hamada surface.

To begin with, the 50m by 50m major grid system that was established in the first season (Fujii 1998: fig. 1) was extended to a certain degree, toward the south and the west in particular (**Fig. 1**). Using this renewed major grid system that covers an area of ca. 30ha., an intensive on-foot survey was conducted three times in total: twice before excavation and once thereafter. The procedure was as follows. First, four to five staff members marched in a line keeping an interval of ca. 10m respectively and, when noticing a burial cairn, marked it with a kebab skewer that was attached with a flag on its top. Then, after every major square was thoroughly investigated, it was briefly reexamined walking in a different direction (This reexamination resulted in the rejection of some questionable examples and, at the same time, the additional identification of a few less visible ones). Burial cairns that passed this double check were plotted on a site map with tentative registration numbers. In addition, photos and brief notes were taken about each example. After these procedures, the excavations that will be described below were undertaken. Finally, on the basis of the results of these excavations, all major squares were briefly re-inspected for the final registration.

As a result, some forty burial cairns were identified anew around the SW Complex. The total number would still increase to some extent if questionable and finally rejected examples were also in-



1. Qā' Abū Ṭulayḥa West: structural remains and core concentration areas.

cluded. Whatever the case, it is now evident that the Layer 4 burial cairn entity covered a wider range than thus far suggested. The site size of QATW should be re-estimated ca. 20ha. or even more — an area comparable with or even larger than PPNB mega-settlements such as 'Ayn Ghazāl (عين غزال) and Tall abū Hurayra (تل أبو هريرة). One may therefore conclude that QATW was a huge necropolis of early pastoral nomads who were based in the al-Jafr (الجفر) basin.

The Excavations of the Layer 4 Burial Cairn Entity

Although the newly found burial cairns have much in common with BC-400s that were identified in the last season (Fujii 2002a: 24-25), a few noticeable differences in inner structure allow us to define the two new types - BC-500s and BC-600s. In short, burial cairns that have a long, under-mound pseudo-wall roughly equal in length to the diameter of a cairn mound are defined as BC-500s; those that have a long pseudo-wall arranged aside (thus not covered with) a cairn mound are designated as BC-600s. The available evidence, as will be noted below, suggests that BC-500s and BC-600s are derivative forms of BC-400s and therefore probably later in chronology than the latter. Thus, it appears that BC-500s and BC-600s represent the final phase of the Layer 4, long-extended burial cairn entity at QATW, with BC-400s being their direct ancestors.

A total of twelve burial cairns were excavated either entirely or partly in this season, four of which belong to BC-400s, five to BC-500s, and the other three to BC-600s. They were all constructed on the upper surface of Layer 4, thus being assigned to the Late Neolithic horizon. It is however important to note that the latter two groups, BC-600s in particular, were often built on a ground level a little higher than the upper surface of Layer 4 – another evidence that BC-500s and BC-600s are later in chronology than BC-400s.

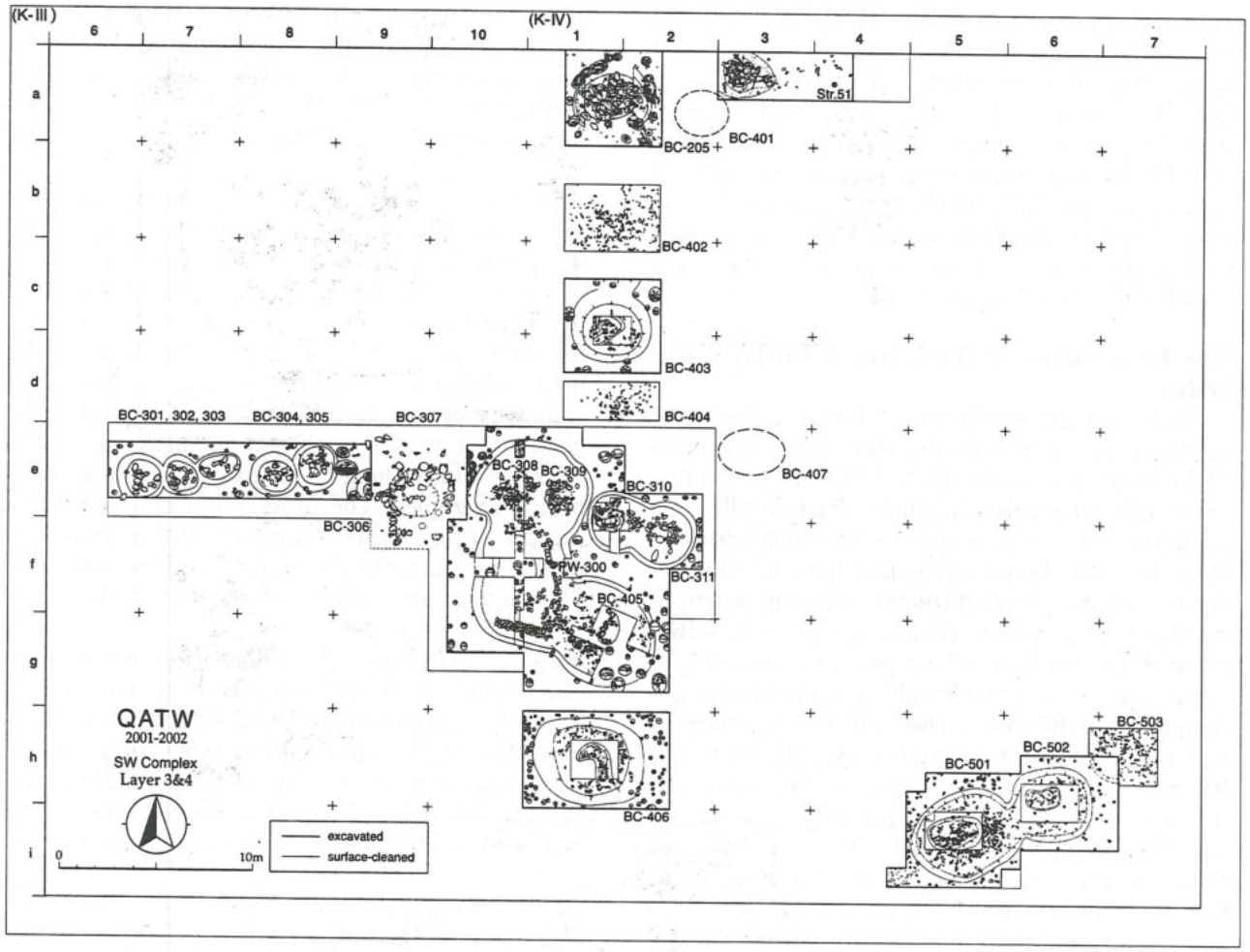
BC-400s

As noted in the last report (Fujii 2002a: 24-25), BC-400s are characterized by 1) a large, round cairn mound coated with abraded, relatively large flint slabs ca. 10 - 20cm in length, and 2) a short, usually bending at one end, slab-inserted pseudo-wall underneath the central part of the cairn mound. In the last season, BC-405 and two probable examples, BC-310 and BC-311 (both of which were altered by a later population and thus have a similar appearance to BC-300s), were excavated. The excavation of this season was focused on BC-403 and BC-406 that sandwich the above three from the north and the south respectively (**Fig. 2**). In addition, four other burial cairns, BC-401, BC-402, BC-404, and BC-407, were also briefly examined.

BC-401: Is located ca. 3m east of BC-205, thus being a little aside from the main developing axis of the Layer 4 burial cairn entity. This burial cairn was not excavated due to the limitation of time, but the location and size of a flint-coated convexity (probably the central part of the cairn mound), coupled with the cross-section that was exposed to the southwest of Structure 51 (Fujii 2002a: 25-30), suggested that it was ca. 3-4m in diameter and ca. 15cm in relative height – a similar size to its neighboring examples. The observation of the probable mound surface further suggested that a short pseudo-wall underneath the mound was oriented NE-SW – again, an affinity to adjacent examples.

BC-402 to BC404: These three burial cairns are lined south of BC-205 roughly at regular interval (ca. 3-5m), thus linking BC-200s to the north and BC-300s to the south. Of the three, only BC-403 was excavated entirely down to an under-mound feature. BC402 and BC-404, on the other hand, were surface-cleaned and drawn at this state.

BC-403: Our main concern here, is a slightly oblong mound, measuring ca. 4.1m (E-W) and 3.8m (N-S) in two axes and ca. 12cm in relative height (**Fig. 3**). The existence of a small pit (P-01) between the two mound-layers clearly indicates that the mound was not formed in a single process (Fujii 2002a: 18-19). This pit included a number of larger abraded flints, possibly suggesting that the ground surface and/or the lower mound surface were swept prior to the addition of the upper mound-layer. The mound surface, the central part in particular, was covered with abraded flint slabs. Underneath this flint concentration was found a short, NE-SW oriented pseudo-wall slightly bending at one end, which measured ca. 1.5 - 2m wide, ca. 4 - 5m long, and ca. 15cm in relative height. A series of abraded flint and limestone pebbles were found inserted on its top, but their arrangement was too irregular to be reliably identified as a two-rowed upright slab wall, a long tradition inherited among the Layer 4 burial cairn entity from the NE Complex down to some of BC-300s. A total of twelve mourning pits were found around the mound. Interestingly, some of them cut its edge – a similarity to mourning pits around BC-200s and BC-300s (Fujii 2002a: 15-25). The contents of these pits were also similar to



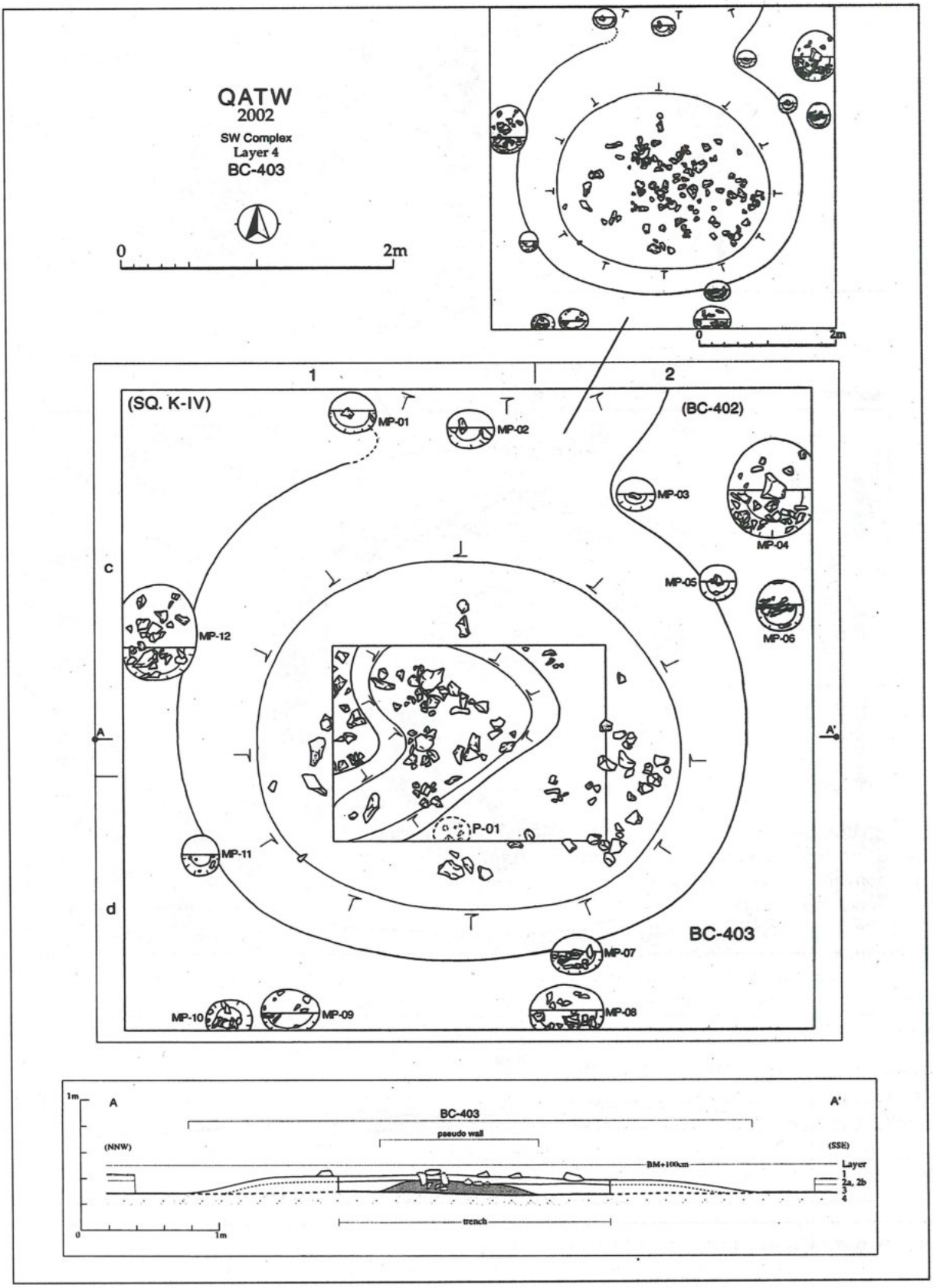
2. SW Complex: the later examples of BC-200s to the earlier examples of BC-500s.

them; smaller pits often included a single, upright, abraded flint slab in their center, whereas the larger pits contained numerous flint and/or limestone pebbles.

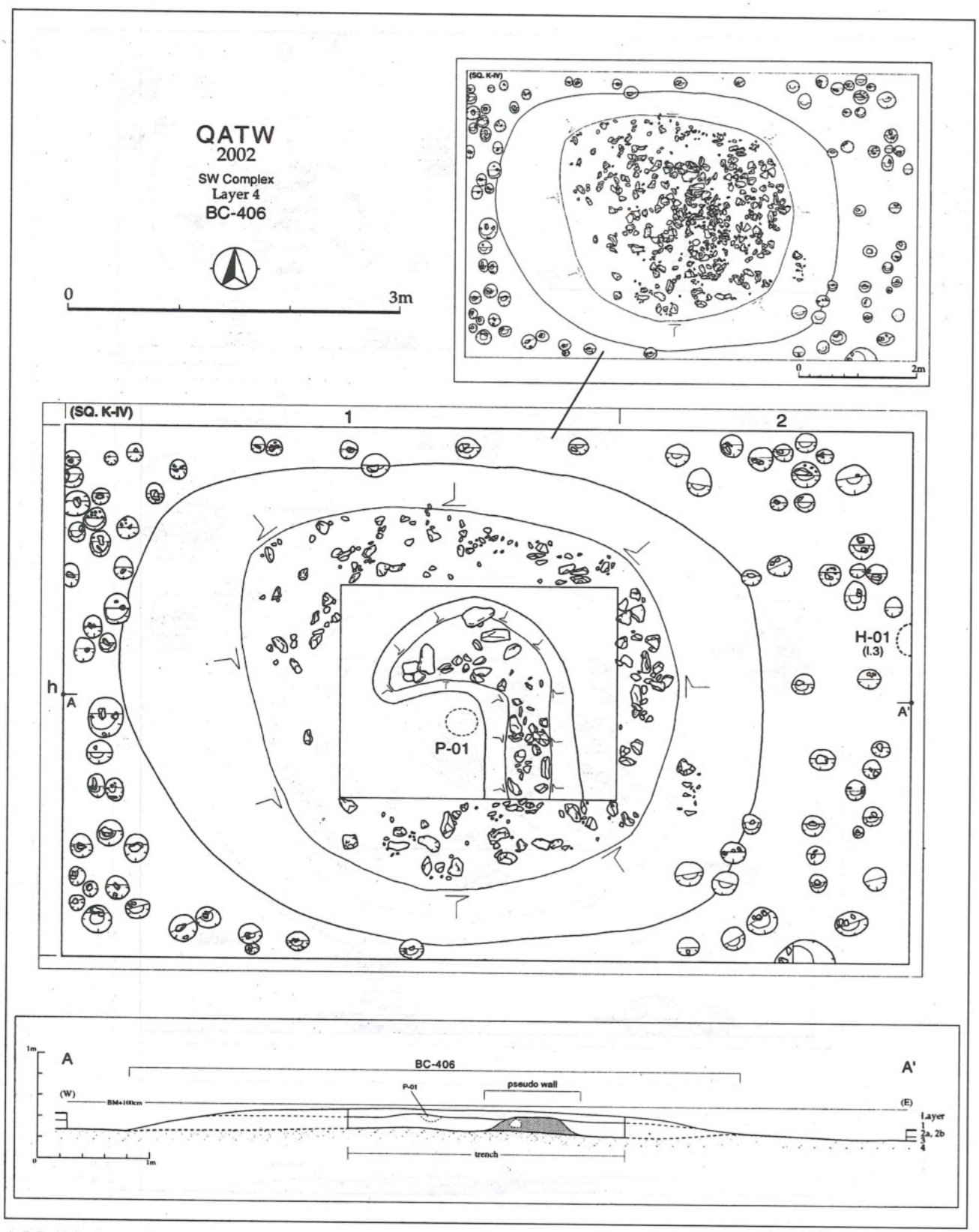
On the other hand, no remarkable information was obtained from the observation of BC-402 and BC-404, except that both of them resemble BC-403 in their size, general plan, and the way of mound coating.

BC-406: Is located ca. 5m south of BC-405 that was excavated in the last season (**Fig. 4**). It was roughly oblong in mound plan, measuring ca. 6m (W-E) and 5m (N-S) in two axes with relative height of ca. 18cm. Here again, a short, N-S oriented, bending pseudo-wall ca. 2 - 3m long and ca. 1m wide was confirmed beneath the central part of the cairn mound (**Fig. 5**). It was topped with abraded flint slabs and limestone pebbles, but, as was the case with BC-403, only a slight sign of two-rowed arrangement was noticed. Beside this pseudo-wall, a small pit (P-01), ca. 25cm in diameter and ca. 5cm deep, was found at a little lower level than the mound surface. It included a number of abraded flint pebbles, probably providing another evidence for the sweeping in the course of mound construction.

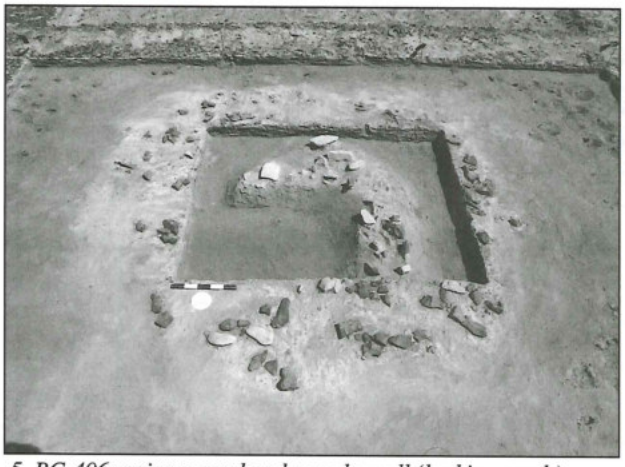
What characterizes this burial cairn is the high density of mourning pits, which total 83 and average ca. 7 to 8 pits per one square meter. Also of interest is the reduction in mourning pit size. No larger examples were recognized around this burial cairn; most of them are small, measuring ca. 10cm in diameter and less than 5cm in depth. It is also noteworthy that the edge of the cairn mound is less frequently cut by mourning pits – another difference from mourning pits of BC-200s down to BC-403. Interestingly enough, in accordance with these changes, the contents of these mourning pits converged on either a single, upright, abraded flint pebble (which often, if not always, faces the center of the mound) or a few thermal-flaked flint flakes. It



3. BC-403: plan and cross-section.



4. BC-406: plan and cross-section.



5. BC-406: cairn mound and pseudo-wall (looking north).

appears that BC-406, together with BC-501 mentioned below, witnessed the climax of the mourning pit ritual.

BC-407: Is located ca. 5m southeast of BC-404. It is another example of burial cairns that were constructed slightly offset from the main developing axis of the Layer 4 burial cairn entity. Although not excavated, the central, flint-coated convexity warrants the identification of this burial cairn. The surface observation and the comparison with surrounding examples suggest that it is ca. 4-5m in diameter and ca. 10-20cm in relative height.

BC-500s

Earlier examples in particular, resemble BC-400s in their general appearance. What differentiates these two is the size enlargement of a pseudo-wall at BC-500s. The enlargement is not very remarkable at earlier examples; however, at BC-505 and BC-506, the phenomenon, coupled with the size reduction of the cairn mound, resulted in the near exposure of a pseudo-wall, which had originally been covered entirely with a cairn mound. Also of particular importance is their intra-site location; unlike BC-400s and earlier examples, BC-500s are dotted at random around the SW Complex, thus fully offset from the main axis of the Layer 4 burial cairn entity – a suggestion of fundamental change of burial customs (Although signs of this phenomenon have already been recognized at BC-401 and BC-407 referred to above, it appears that the full-scale dispersion began with BC-500s). In addition, a few minor changes are also recognized, including the deterioration in construction, the decrease in number of mourning pits (especially at later examples), and the disappearance of burning ritual on a cairn mound. It should also be noted that a pseudo-wall became less clearly bending at one end. All these changes strongly suggest that BC-500s are a later, derivative form of BC-400s that are lined to the north.

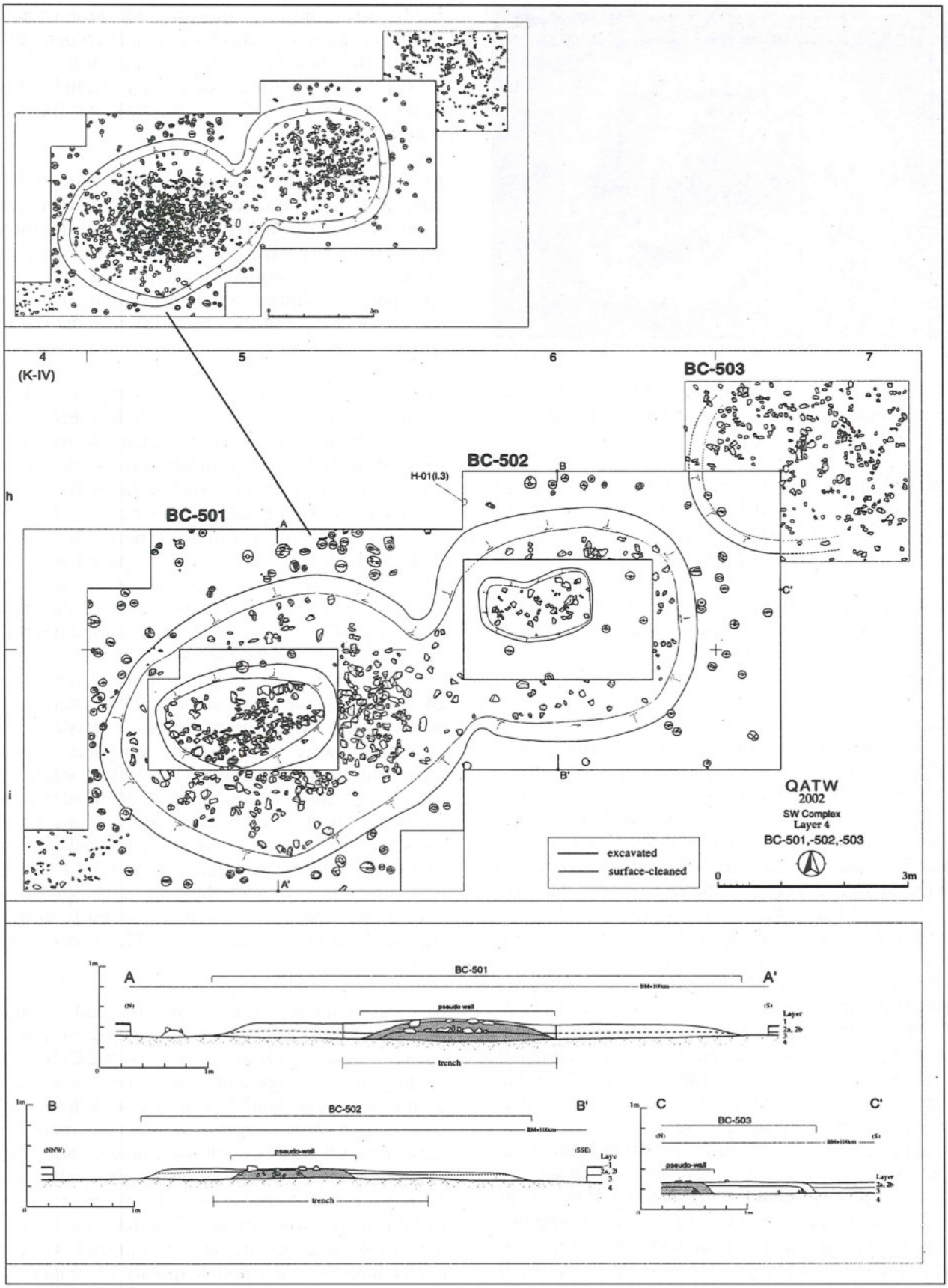
The survey identified some thirty examples, four of which (BC-501, BC-502, BC-504, and BC-505) were excavated.

BC-501 to BC-503: Located ca. 20m east of BC-406, these three burial cairns constitute a short continuum oriented WSW-ENE (**Fig. 6**). Of the three, the western two (BC-501 and BC-502) were excavated. The easternmost example (BC-503) was only partly examined due to the limitation of time and the poor state of the preservation of the mound surface.

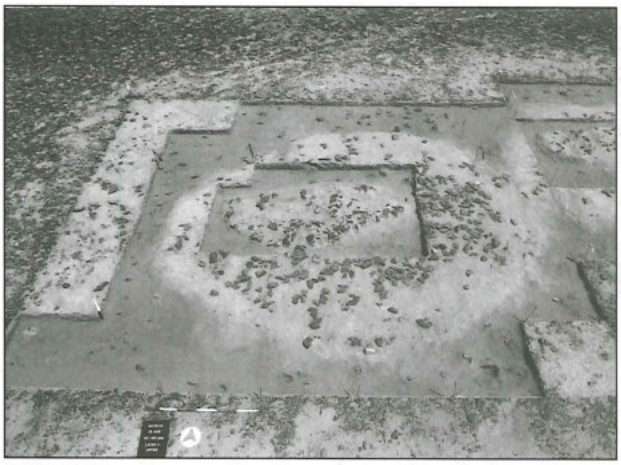
BC-501: Is a relatively large, oblong mound ca. 5.8m (ENE-WSW) and ca. 4.5m (WNW-ESE) long with a relative height of ca. 15cm. It was constructed with two silty mound-layers, the upper layer of which is covered with abraded flint slabs. An oblong, E-W oriented pseudo-wall, ca. 3m long and 2m wide, was found underneath the mound (**Fig. 7**). It also proved to be constructed with two silty layers paved with abraded flint slabs respectively, although it appears that the upper pavement originally represented the two-rowed insertion into the platform of the pseudo-wall.

A total of 81 mourning installations were found encompassing the cairn mound. What interests us here is that mound type mourning installations (36 examples) were also found alongside typical mourning pits (45 examples). Of further interest is the fact that upright slabs that are contained in these mourning installations became larger in size (often fist-sized) and, at the same time, not only abrade flint but also limestone pebbles were used frequently – a possible sign of the later development of masseboth, which flourished in the Early Bronze Age and onwards (Graesser 1972; Avner 1984, 1990).

BC-502: Is located next to BC-501, and is partly joined to it. Although smaller in size (ca. 4m in diameter), it has much in common with BC-501, including the typology and general orientation of a pseudo-wall. The same is also true with the way of construction, which begins with the construction of a pseudo-wall with two silty-soil layers, then being followed by the covering of the pseudo-wall with a cairn mound, and ending with the pavement of the mound surface with abraded flint slabs. However, a few minor changes are also recognized. Of particular interest is the poorer quality of topping on the pseudo-wall, which represents the final farewell



6. BC-501 to BC-503: plan and cross-section.



7. BC-501: cairn mound and pseudo-wall (looking north).

to the long tradition inherited among the Layer 4 burial cairn entity and is, at the same time, the first sign of further deterioration among subsequent burial cairns. Highly suggestive in this regard is the sudden drop in density of mourning installations, which totals only 34 (25 pits and 9 mounds) even if some examples that seem to belong to BC-503 rather than BC-502 are counted.

BC-503: Is also adjacent to BC-502, but is slightly separated from it. No special comments are needed about this burial cairn, except that it is a small burial cairn ca. 3m in diameter and ca. 15cm in relative height.

BC-504: Unlike BC-501 to BC-503, which are adjacent to the main body of the SW Complex, BC-504 is located ca. 100m SES of it and is at the same time ca. 50m offset from the main axis of the Layer 4 burial cairn entity. The most distinctive feature of this burial cairn, as noted above, is the imbalance in size between the cairn mound and the pseudo-wall (**Fig. 8**). While the former component measures only ca. 3m and ca. 2m in two axes and ca.10cm in relative height, the latter is ca. 3m in length and up to ca. 1.5m in width. This imbalance, coupled with the inconsistency in the general orientation of both components, causes the disproportional appearance of this burial cairn.

The deterioration in construction can also be recognized at other aspects including the mound coating and the topping of the pseudo-wall, both of which became quite sparse and obscure in nature. Also of significance is a further decrease in the density of mourning installations, which total only 24 (21 pits and 3 mounds) and average 1 to 2 example(s) per square meter.

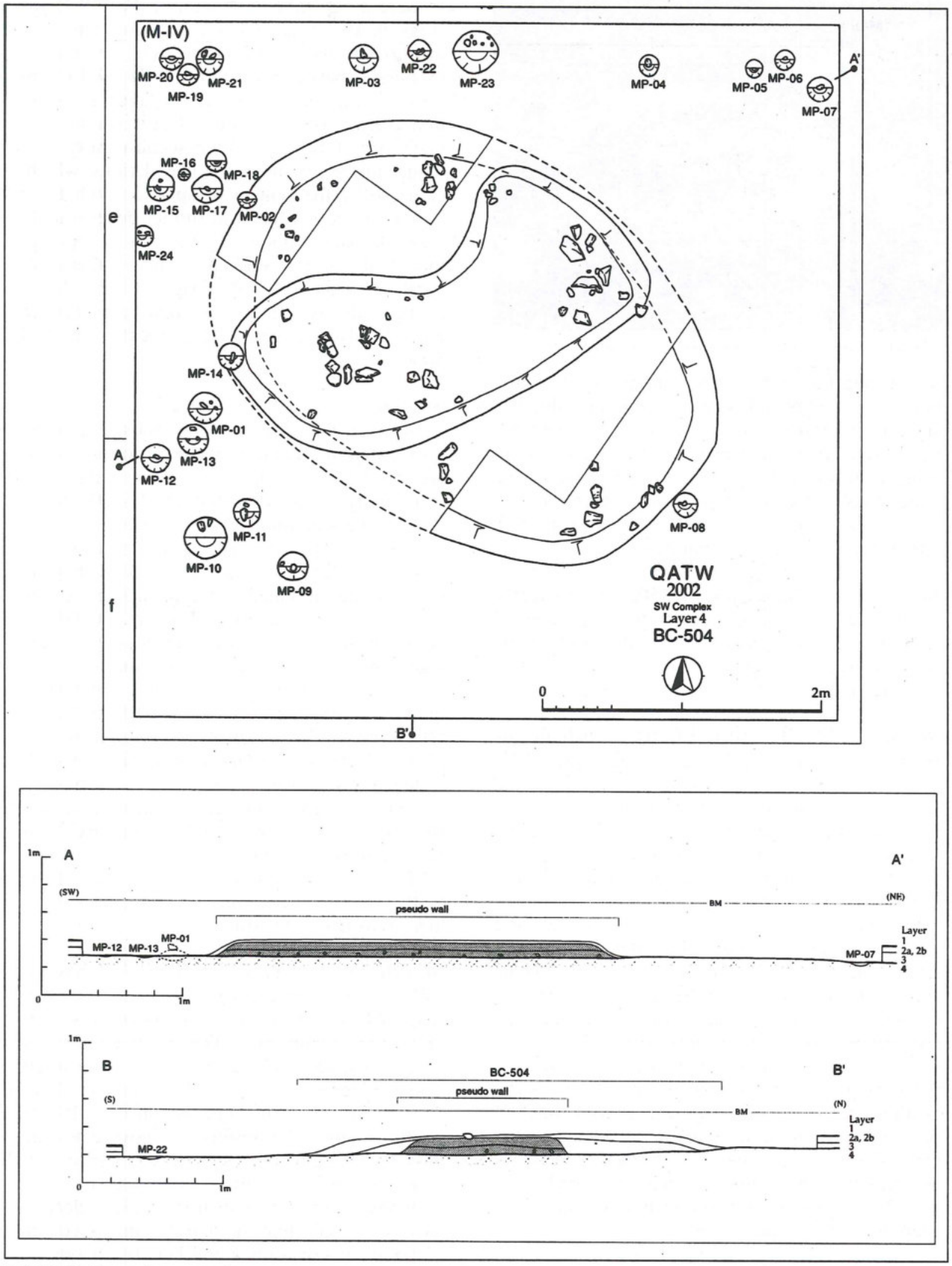
BC-505: Another example of off-set burial cairns, is located ca. 100m southwest of the SW Complex (**Figs. 9, 10**). It has much in common with BC-504 mentioned above, including the structural disproportion between the cairn mound and the pseudo-wall, and the general deterioration in construction, to say nothing of the offset location from the main axis of the Layer 4 burial cairn entity. Of particular interest is mourning installations, which became still infrequent in comparison with BC-504. Likewise, the pseudo-wall further degenerated into a simple bank without any substantial topping, although the slight bending at the southern end is barely reminiscent of the original form. All these changes clearly indicate that this burial cairn (and BC-504 also) represents the latest form of BC-500s.

BC-600s

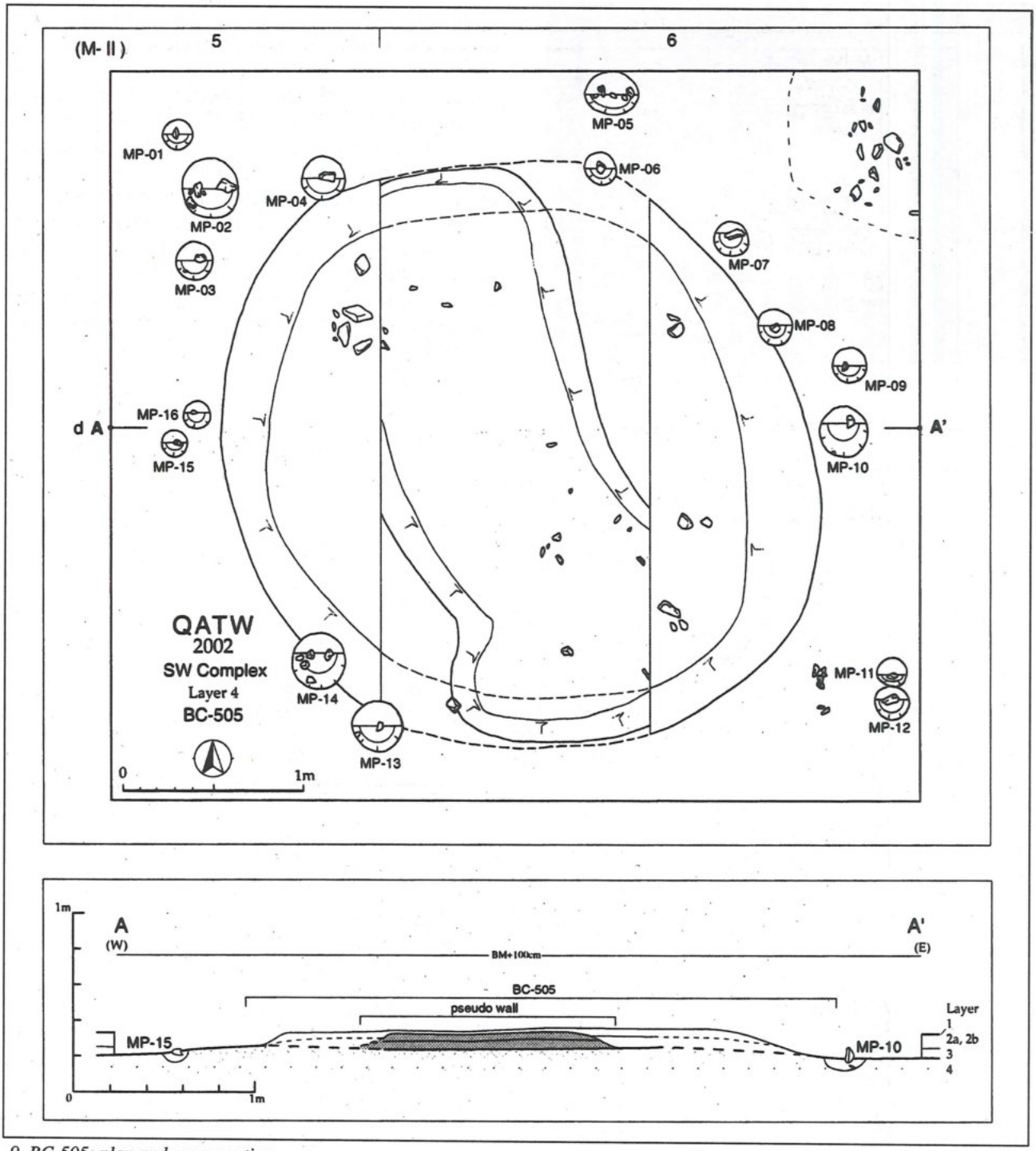
As was the case with BC-500s, BC-600s are also dotted at random to the south of BC-400s and are offset from the main axis of the Layer 4 burial cairn entity. What differentiates BC-600s from BC-500s is the structural relationship between a cairn mound and a pseudo-wall. While the former component overlaps the latter at BC-500s, both components are arranged side by side at BC-600s. Thus, as will be exemplified below, BC-600s have an odd profile with a short segment (i.e., a pseudo-wall) being in contact with a semi-circle (i.e., a cairn mound). There is little doubt that this structural transformation originated in BC-504 and BC-505 where the enlargement of a pseudo-wall, coupled with the size reduction of a cairn mound, resulted in the nearly exposure of the former component. It is therefore reasonable to assume that BC-600s are later in chronology than BC-500s, to say nothing of BC-400s.

To date, a dozen examples have been identified as BC-600s. Of them, the following three were either excavated or test-trenched.

BC-601: A small burial cairn ca. 70m SW of the SW Complex, represents a basic form of BC-600s (**Figs. 11, 12**). Two major components – a small, semi-circular cairn mound ca. 3m in diameter and a straight pseudo-wall ca. 5m long – are arranged side by side, instead of up and down. The flint topping on the whole mound, though less elaborated, roughly follows the profile of the two components, thus providing another line of evidence for the structural analysis suggested above. Also of importance is the cross-section, which clearly indicates not only that this burial cairn is composed of the two major components but also that the pseudo-wall was constructed first and then the semi-



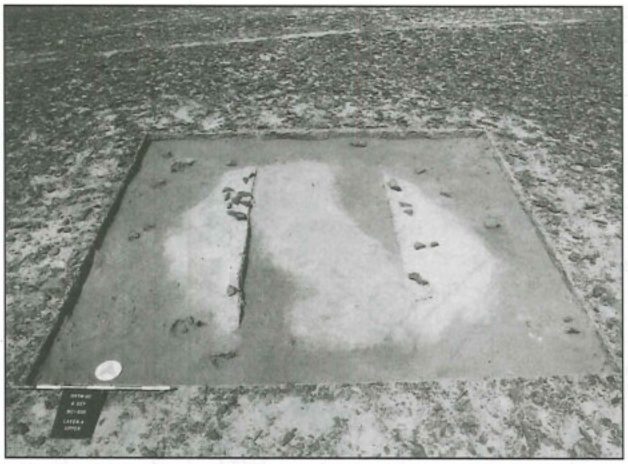
8. BC-504: plan and cross-section.



9. BC-505: plan and cross-section.

circular cairn mound was attached to it – a constructional order shared among the Layer 4 burial cairn entity including the pseudo-settlement at the NE Complex (Fujii 2001: 33-34). Although the side-by-side arrangement of the two major components, in a sense, may represent a reversion to earlier types, BC-100s and BC200s in particular, it seems more likely that the structural change was the turning point towards the Layer 3 composite burial enclosure.

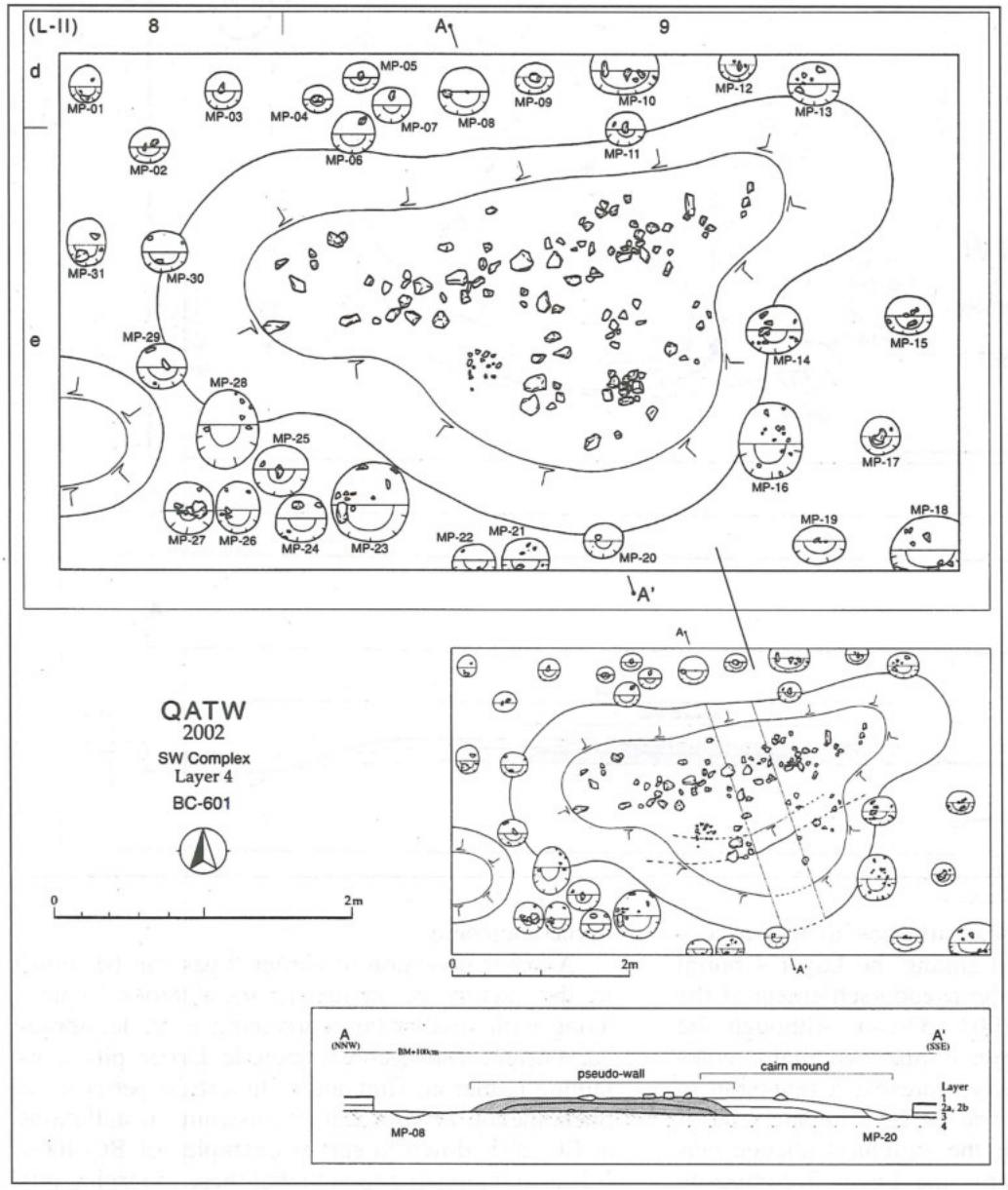
Another reversion to earlier types can be found in the duality of mourning installations, which, along with smaller pits containing a single, abraded, upright flint pebble, include larger pits containing numerous flint and/or limestone pebbles – a phenomenon reminiscent of mourning installations at BC-200s down to earlier examples of BC-400s. It is also interesting to note that these mourning pits



10. BC-505: cairn mound and pseudo-wall (looking north).

often cut the mound edge – another similarity to the earlier examples. Of another interest is the revival of burning ritual, which is evidenced by the sporadic occurrence of charcoal remains from six mourning pits (MP-02, -03, 05, 25, 27, and –28).

Despite these aspects reminiscent of earlier types of burial cairns, the side-by-side arrangement of the two major components, the southernmost and offset intra-site location, and the deterioration in mound topping strongly suggest that BC-601 represents the final phase of the Layer 4 burial cairn entity. This is all the more likely because no remarkable reversion cannot be seen at BC-602 and BC-603 described below.



11. BC601: plan and cross-section.

12. BC-601: cairn mound (looking north).

BC-602: Is located ca. 150m SES of the SW Complex and is ca. 70m offset from the main axis of the Layer 4 burial cairn entity. It is not a single burial cairn but a composition of three units (BC-602a, BC-602b, and BC-602c) that resemble BC-601 in general techno-typology (**Fig. 13**). Due to the limitation of time, this burial cairn complex was only briefly examined with two trenches that cross the three units roughly at a right angle.

The cross-section AA_ suggests that the construction probably advanced from the north to the south, namely from BC-602a to BC-602c. Mourning pits were infrequent and only four small examples were found in the two trenches. It is important to note that, unlike BC-601 mentioned above, all of them contained a single, abraded, upright flint pebble in their center. Nothing conclusive can be said about the density of mourning installations; however, the large blank at the southern end of Trench 2, along with the infrequency at the northern end of Trench 1, may suggest that this burial cairn complex, as was the case with the later examples of BC-500s, was less frequently encompassed with mourning installations.

BC-603: Another example of composite burial cairn, is located ca. 200m SWS of the SW Complex. Together with BC-602 mentioned above, it forms the southern boundary of the Layer 4 burial cairn entity thus far identified. This burial cairn complex consists of two small, BC-601-like units (BC-603a and BC-603b) that are paired symmetrically (**Fig. 14**). The mound, as a whole, is oblong in general plan and measures ca. 4.5m in NE-SW longer axis and ca. 3.5m in NW-SE shorter axis. It is interesting to note that the flint topping on the mound surface, though poor in elaboration, roughly follows the profile of the four major components that constitute this composite burial cairn. Cross-section AA – suggests that BC-603b is earlier in construction order than BC-603a, although the time interval between the two is probably negligible.

Mourning pits encompassing this composite burial cairn have much in common with later examples of BC-500s. First, they are relatively low in density, totaling only 25 and averaging ca. 1-2 example(s) per one square meter. Second, they are composed only of smaller examples that contain a small, abraded, upright flint pebble in their center. Third, they are mostly located at the surrounding of the mound and rarely cut the mound edge. All these support the view that BC-601 is rather exceptional and that BC-600s are directly derivative of BC-500s, the later examples in particular.

What characterizes BC-603 (and BC-602) is the fact that plural burial cairns were joined together to form a relatively large complex. This, coupled with the exposure of a pseudo-wall that has long been covered with a cairn mound, may explain the appearance of the Layer 3 composite burial, although a substantial gap, both typological and chronological, still intervene between the two.

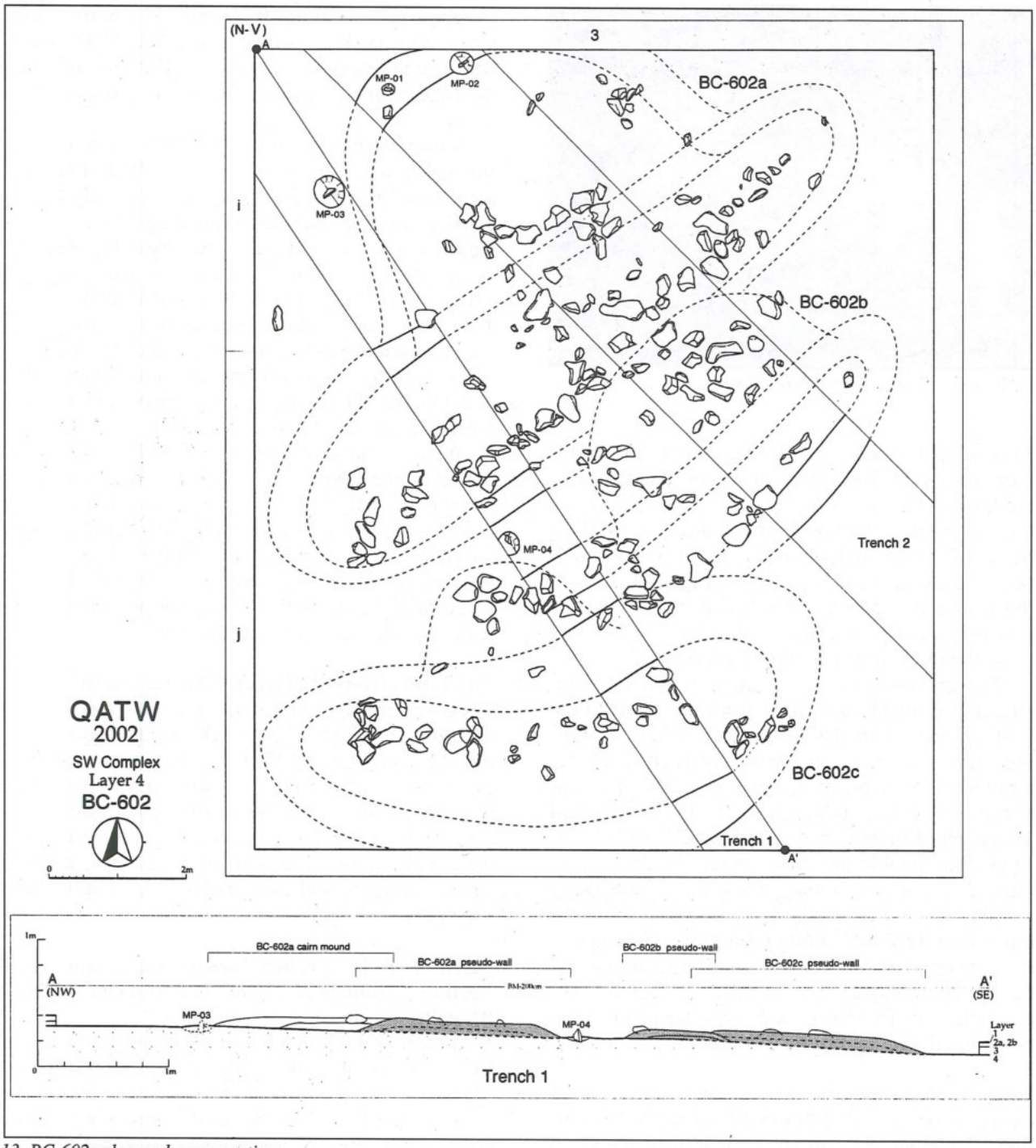
The Finds from the Layer 4 Burial Cairns

As repeatedly noted in the previous reports (Fujii 2000: 163; 2001: 32-33; 2002a), the Layer 4 burial cairn entity at QATW is characterized by the extreme scarcity of finds. A total of twelve burial cairns that were excavated in this season are no exception to this. Only a handful of flint artifacts were found in obscure contexts. They include some tabular scrapers and Jafr blades, which apparently derived from Layer 3.

Discussion 1: Archeaological Implications of Techno-Typological Transition from BC-400s to BC-600s

A series of techno-typological transitions from BC-400s to BC-600s suggests a fundamental change of burial practice in the Layer 4 burial cairn entity at QATW. The question is which part of the practice was changed and how it was transformed.

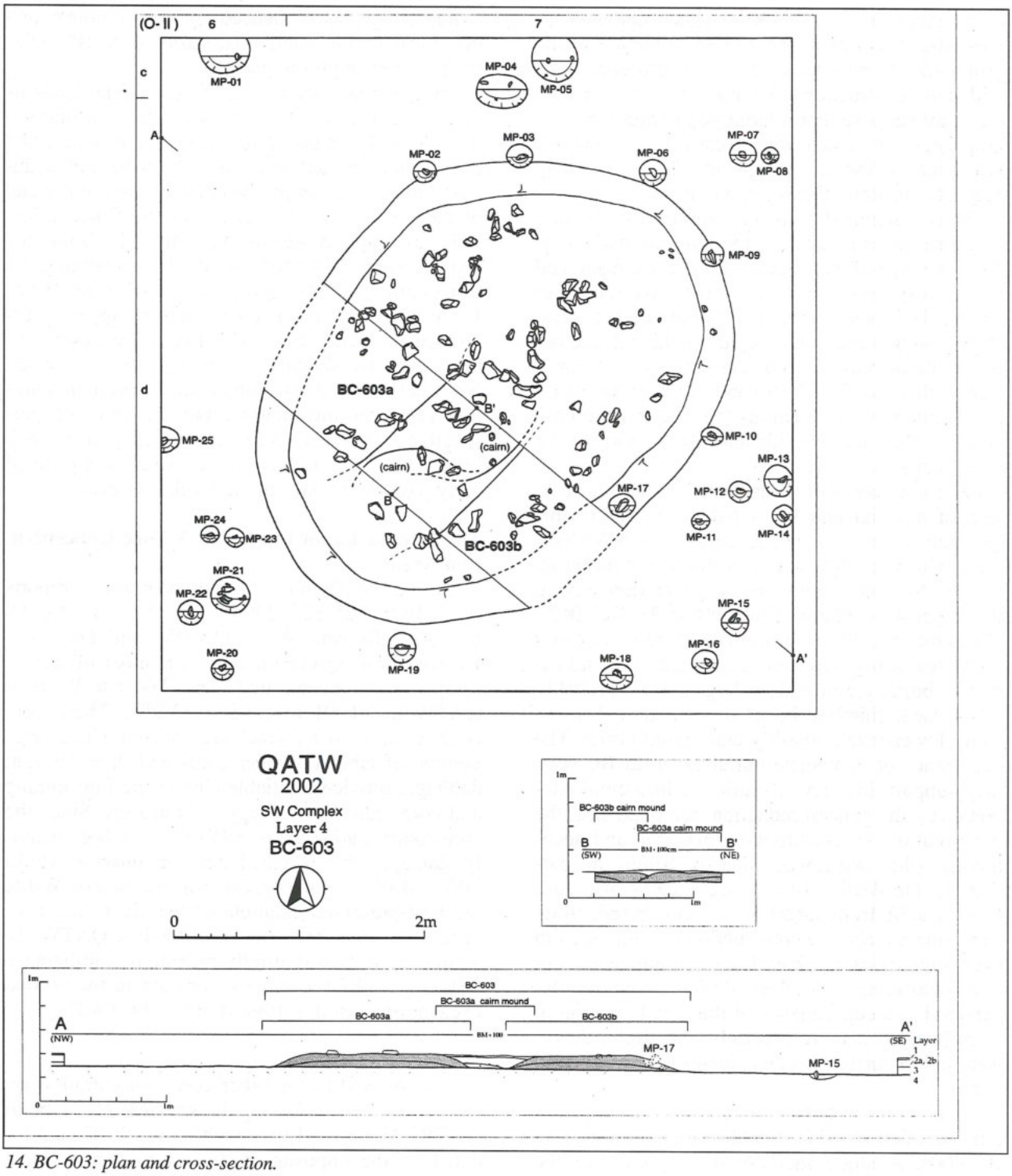
A key to this question is the sudden increase in frequency of the same type of burial cairns from BC-400s to BC-500s. The total number of BC-500s amounts to at least about thirty – a frequency three to five times as many as BC-400s that comprise 7 to 9 units. This is all the more noteworthy because no remarkable fluctuation in frequency is recognized from BC-100s (6 units), through BC-200s (at least 2 but probably 4 to 5 units) and BC-300s (9 units excluding BC-310 and BC-311), to BC-



13. BC-602: plan and cross-section.

400s (7 to 9 units). The same is true of BC-600s, which, though less frequent than BC-500s, yet exceed BC-400s and earlier types in frequency. It should also be noted that BC-600s, as exemplified by BC-602 and BC-603, often include composite burial cairn – a plus factor that pushes up the total number to a substantial degree.

The main issue here is the background of the mass-production of the same type of burial cairns. Population increase would be irrelevant in this case, because this factor is influential only in a society in which most, if not all, members are buried equally. Since the Layer 4 burial cairn entity most likely represents the symbolic burial of chieftains, another factor must be involved. Suggestive in this regard is the intra-site, offset location of BC-500s and BC-600s. As noted above, both disregard the main axis that was long kept among the Layer 4 bu-



14. BC-603: plan and cross-section.

rial cairn entity from the NE Complex down to BC-400s, and are dotted at random around the SW Complex. This phenomenon, coupled with the sudden increase of the same type of burial cairns, can be understood as a decline or breakdown of the long tradition due to the popularization of cairn burial itself.

Another line of evidence for this view comes from numerical data of mourning pits, which indicate that the average density of mourning pits dropped to a large extent from BC-400s and earlier examples of BC-500s (ca. 7-8 examples per one square meter) to BC-504, BC-504, and BC-600s (ca. 1-2 example(s) per one square meter), with the

only exception of BC-601. This phenomenon, most likely, points to the sudden reduction in the group size of mourners who were also concerned with the construction of burial cairn. Given this, one may suppose that a large population who had long been concerned with a cairn burial was divided into a few sub-groups and that each group began to construct their own burial cairns.

Thus it seems that the division of a social unit for cairn burial resulted in the mass-production of the same type of burial cairns on the one hand, and in the dispersion from the main axis long-kept among the Layer 4 burial cairn entity on the other. Highly suggestive in this regard is the balance between the increase ratio of the same type of burial cairns (three to five times) and the decrease in ratio of mourning installations (ca. one-third to one-eight), which may provide another support for the view suggested above.

The next point of discussion is what the division of a social unit is related to. A clue to this question is the formation process of the NW Complex, which strongly suggests that chieftain burial was performed generation by generation among the Layer 4 population (Fujii 2001: 33-37; 2002). Given this, the decomposition of a large social unit into a few sub-groups may be related to the transition of burial practice from large-scaled, probably tribe-based, chieftain burial to smaller-scaled, socially lower-level, possibly clan-based burial. The occurrence of composite burial cairns at BC-600s may support this view. A series of incidental phenomena – the general reduction in mound size, the deterioration in construction material and technology (the two-rowed slab insertion, in particular), the decline of burning ritual – also suggests a shift from larger social unit-based, time-consuming, elaborate construction of a burial cairn to smaller social unit-based, time-saving, less elaborate construction. All these things can be best understood as a consequence of the popularization of cairn burial, or, more precisely, the slight, downward enlargement of social classes subject to cairn burial.

It should be noted, however, that some signs of this transition could be found among BC-300s and BC-400s. A slight increase in frequency of the same type of burial cairns, for example, was recognized at BC-300s and BC-400s. The fluctuation from the main axis of the Layer 4 burial cairn entity, as evidenced by BC-300s, BC-401 and BC-407, was also discernible at this stage. Accordingly, it may be more correct to say that changes had begun gradually with BC-300s and BC-400s. Nevertheless, it is reasonable to conclude that full-scale change, as evidenced by the complete dispersion from the main axis, started with BC-500s, their later examples in particular.

This explanatory model, if acceptable, leads us to assume that tribe-level unity of early pastoral nomads was decomposed into lower-level unity, and that a relatively autonomous, intra-tribe unit (clan-based unit, for example) was established at the end of the LN or the initial phase of the Chalcolithic. This assumption seems incompatible with the broadly supported chiefdom model concerning the Chalcolithic society in the southern Levant (Levy 1986; 1995). Does this contradiction suggest a difference in social structure between the desert and the sown? Or should it be interpreted otherwise? No conclusive remarks can be made based on a limited range of information, but an array of perspectives retrieved from QATW may provide a base for further studies of the social dynamism of early pastoral nomads in the southern Levant.

The Excavation of the Layer 3 Core Concentration Areas

As was briefly referred to in the previous reports (Fujii 1998: 125-126; 2000: fig. 1; 2001: 19, fig. 1), *Qā' Abū Ṭulayḥa* West (QATW) and *Qā' Abū Ṭulayḥa* East (QATE) include a number of tabular scraper core concentration areas: W-01 to W-08 in QATW and E-01 to E-03 in QATE. These core concentration areas, which are covered with a large volume of tabular scraper cores and their relevant debitage, provide a reliable clue to the flint mining and core reduction strategy at both sites. Since the core concentration areas at QATE have been heavily damaged by recent limestone quarries (Fujii 2000: 149), our investigation was focused on W-06, the best-preserved example of the eight core concentration areas thus far confirmed at QATW. In addition, W-03 was briefly reexamined utilizing a test trench (TT-C) that was opened in the second excavation season in 1998 (Fujii 1999: 80-82).

W-06

As opposed to the other core concentration areas, which are lined along the southeastern slope of QATW, W-06 (and the neighboring W-07) are located on the opposite, northwestern gentle slope. As for the intra-site location, it lies ca. 200m northwest of the NE Complex and ca. 300m north of the SW Complex respectively (**Fig. 1**). This core concentration area is relatively small in size (ca. 50m in the W-E longer axis and ca. 20m in the N-S shorter axis) and covers an area of ca. 1,000 m^2. It can be divided into the following three zones: the mine zone in the middle, the waste zone to the

north, and the workshop zone to the south.

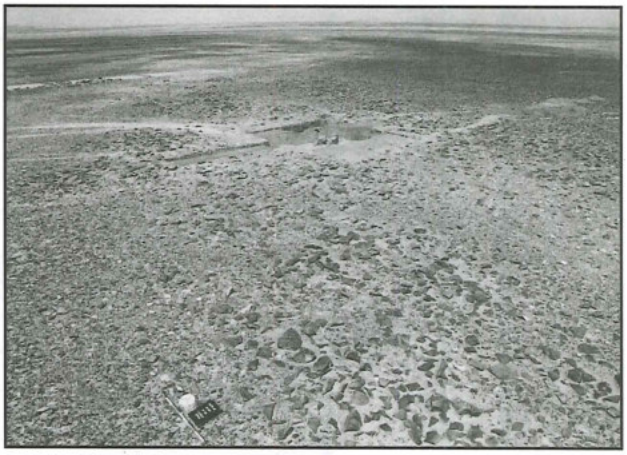
Mine Zone

In contrast to the south and the north zones where flint chunks or cores, often forming a circular unit, densely cover the whole range, the middle zone is characterized by a narrow, ESE - WNW oriented shallow depression where the flint cover is relatively sparse (**Figs. 15, 16a and 17**). Expecting some evidence for flint mines under this depression, a long trench, 20m long and 1m wide, was opened crossing it. As a result, two large mining pits, Pit-01 and Pit-03, were found in the middle and southern part of the trench respectively. While Pit-01 was further examined with the trench being enlarged to the width of 5m, two other mining pits, Pit-02 and Pit-04, were additionally confirmed at both ends of this enlarged trench.

Thus, a total of four mining pits have been revealed in this trench. The mining order of these pits is difficult to specify, but the fact that Pit-02 partly cut the edge of Pit-01 (**Fig. 16b**) indicates that the mining at W-06 started with the eastern, higher in elevation side and then gradually advanced westwards (or downwards). Pit-03, on the other hand, was covered with cores and nodules probably derived from Pit-01 and its neighboring mines, thus possibly hinting that it was earlier in mining order than the northern counterparts. Whatever the case, the identification of four mines in the narrow trench suggests that no less than a dozen pits were underlying the mine zone. Of the four mining pits thus far identified, Pit-01 and Pit-02 were excavated, but Pit-03 and Pit-04 were left untouched due to the limitation of time. The following description is concerned mainly with P-01, which was found first and excavated almost entirely.

Pit-01 is roughly oblong in general plan, measuring ca. 6m in the N-S longer axis and ca. 4m in the W-E shorter axis (**Fig. 18**). It is ca. 50-60cm deep, when measured from the upper surface of Layer 3, the ground surface in those days (**Fig. 17b**). It should be noted, however, that the cross-section represents the final picture after a flint bed, ca. 20cm in thickness, was almost entirely stripped off. It is therefore more reasonable to conclude that ancient mineworkers reached the flint bed ca. 30-40cm below the then ground surface.

Fill layers of Pit-01 contained not only a small number of flint nodules but also a large volume of small limestone slabs, the latter of which probably derived from coating sub-layers that sandwiched the flint bed. The slanting sedimentation of these fill layers indicates that the mining advanced gradually from the north toward the south following the supposed extent of the flint bed. It also suggests that excavated soil was not taken away out of the pit but merely swept behind. It is also interesting to note here that the ground surface in those days, though not clearly illustrated in the short-range cross-section, gently inclined toward the north. This means that the mining gradually advanced from the side lower in elevation toward the higher side – a reasonable way of mining on a gentle slope. Also of interest is the fact that Pit-01 (and probably other examples) were opened crossing, not parallel to, the expected range of the flint bed – again, a skillful way of mining. It is important to note here that a similar example has recently been reported from J-88 (Goat Horn Mine), one of the flint mines that were located in the northeastern part of the al-Jafr basin (Quintero *et al.* 2002: fig. 8).

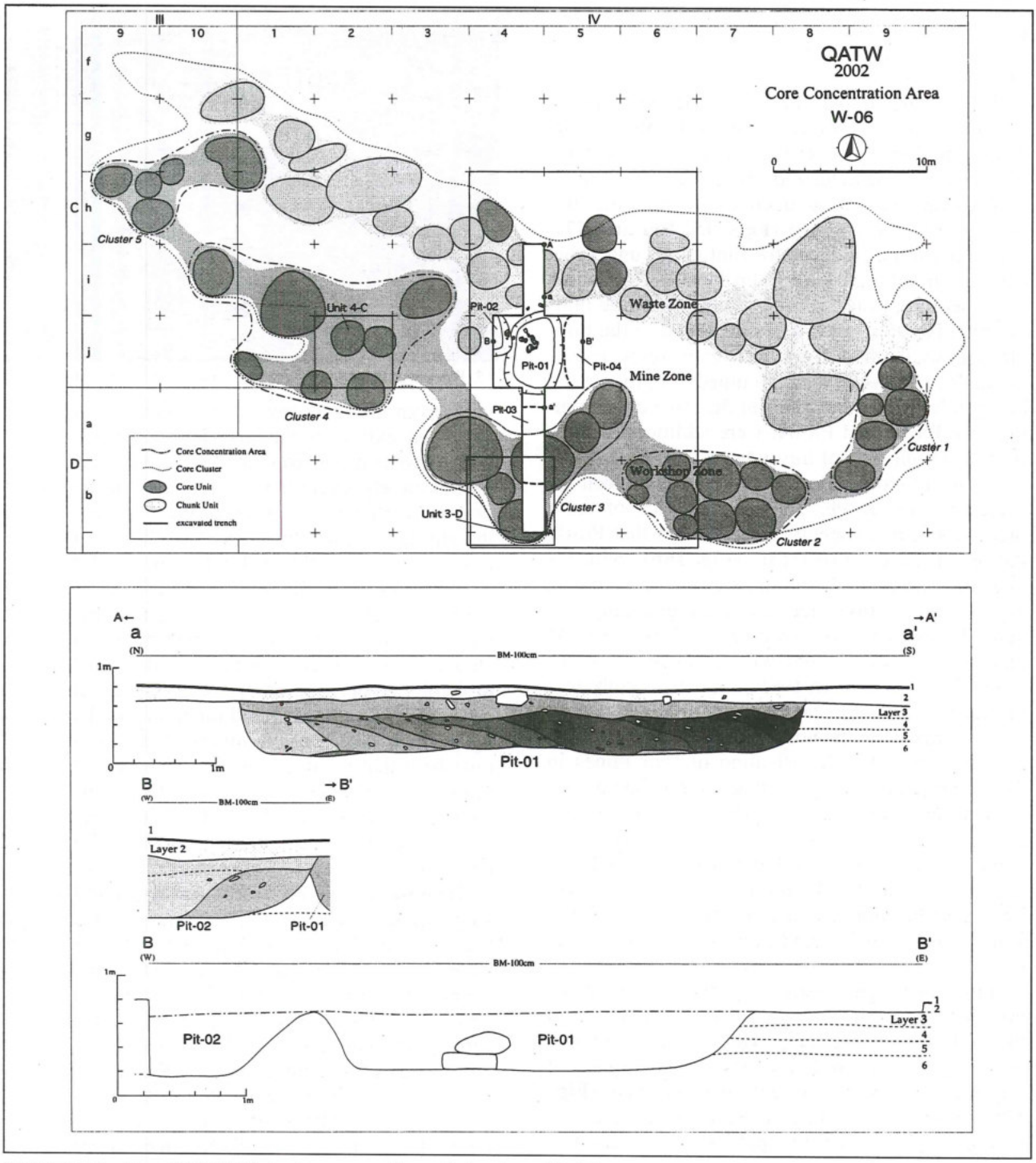


15. W-06 and the Trench: general view (looking northwest).

Interestingly, a few tabular scraper cores with a single flaking scar on their cortical surface were found in the fill layers (**Fig. 19**). They probably suggest that trial flaking was conducted in the course of mining activities. The flint bed, as noted above, was almost entirely stripped off with the exception of a single flint nodule that was attached to the pit base. No continuation of the flint bed was recognized on the lower walls of the pit – a probable reason for the interruption of mining at this range. Unfortunately, no digging tools were found. However, it seems most likely that some heavy-duty tools, probably stone-hoes and picks, were used for digging such a large pit.

Waste Zone (or Temporary Storage Zone)

The waste zone, a narrow band that extends to the north of the mine zone, is characterized by a dense cover of mined, mostly unworked chunks. The formation of the waste zone at the northern, lower in elevation side of the mine zone is a natural

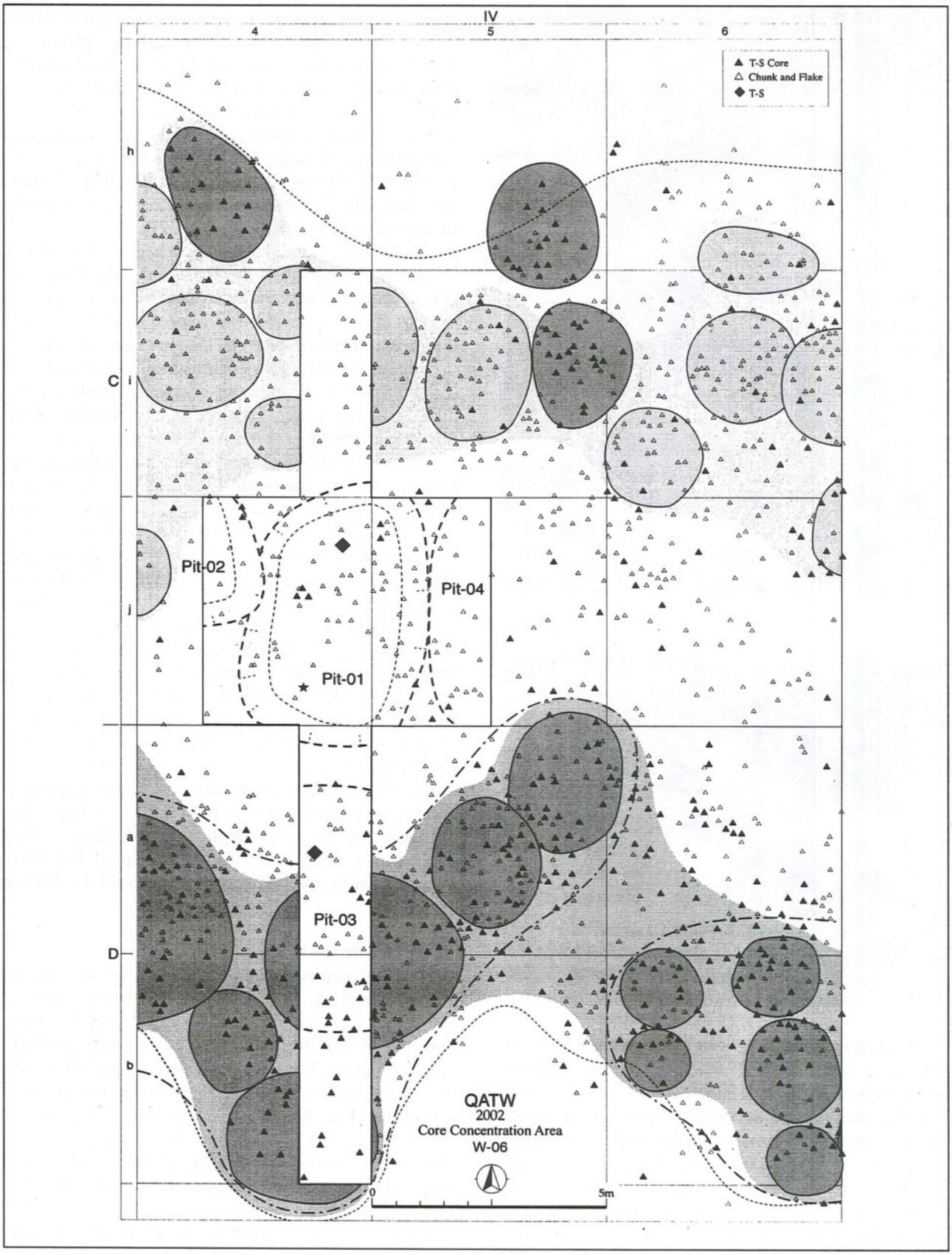


16. A (above): plan of W-06; B (below): cross-section and elevation of Pit-01.

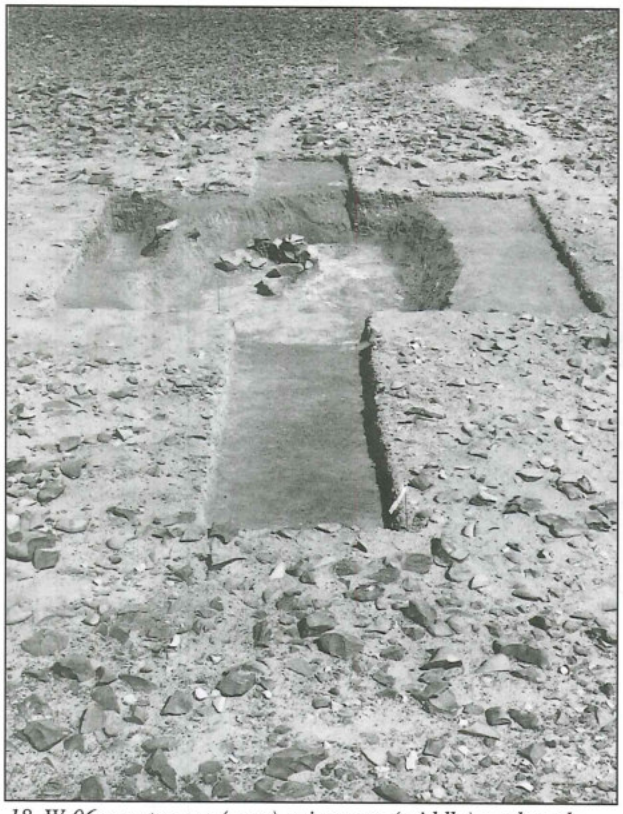
consequence when considering the mining direction suggested above. A similar picture has been noted at J-88 (Quintero *et al.* 2002: fig. 8). Interestingly enough, mined chunks form a few dozens of circular units, roughly corresponding with the number of workshop units to the south. It should be noted, however, that, unlike the workshop zone, no clear evidence for the clustering of these units could be recognized at the waste zone.

Workshop Zone

With the mine zone in between, the workshop zone confronts the waste zone located to the north. The contents of this zone are also in marked contrast to that of the waste zone and the dense scatter of tabular scraper cores, instead of chunks, char-



17. W-06: flint scatter map around Pit-01.



18. W-06: waste zone (rear), mine zone (middle), and workshop zone (front).

19. Pit-01: tabular scraper cores and chunks (looking west).

acterizes this zone. The intensive examination of this zone has provided much information about post-mining activities at W-06.

First, the contrast in contents between the waste and the workshop zone highlights the following flowchart: 1) mined chunks were collected at the rear bank (i.e., the waste zone); 2) good quality nodules suitable for tabular scraper production were picked out from them; 3) they were brought to the opposite, southern bank (i.e., the workshop zone); 4) utilizing these raw material, tabular scrapers cores were produced and tabular scraper blanks were detached from them. Alternatively, promising nodules might have been sorted out in the course of mining and directly brought to the southern bank, although this procedure was time-consuming and therefore unlikely especially while the mining was still at an initial stage. Whatever the case, it is noteworthy that the workshop zone was clearly separated from the waste zone – evidence for systematic tabular scraper production at QATW.

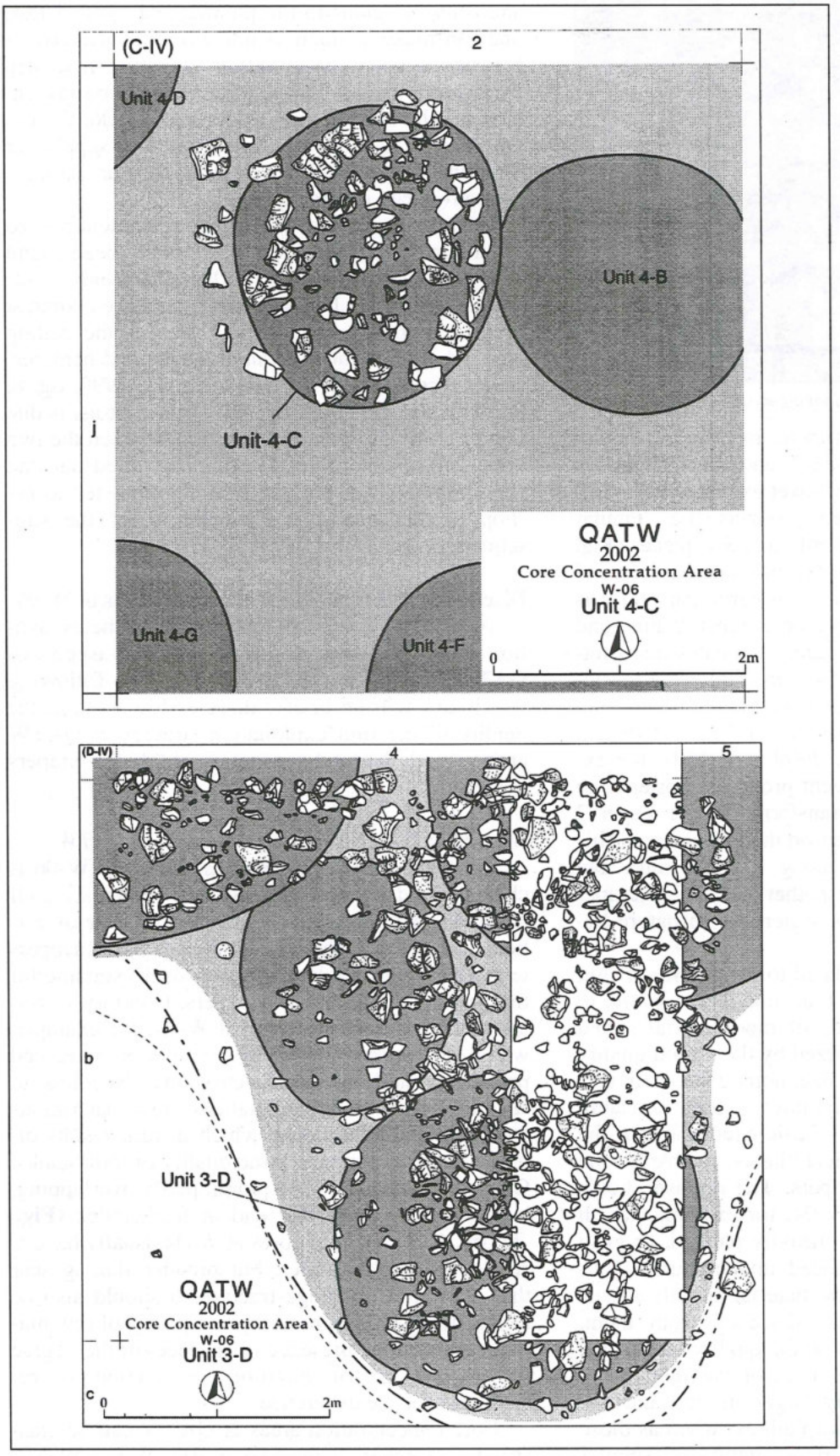
Of further interest is the fact that tabular scraper cores, as exemplified by Unit 3-D and Unit 4-C (**Figs. 20, 21**), were often found forming a small, hollow circle ca. 2 to 3m in diameter. There is little doubt that these hollow circles represent workshops of ancient flint knappers. The small size of the central hollow (ca. 1 - 2m in diameter) probably indicates that a single knapper worked sitting there (Or to put it more precisely, his sitting place was encompassed with exhausted cores and debitage put aside). To date, some thirty workshops have been identified, which appear to form five clusters comprising five to ten workshops respectively. Supposing that each cluster represents the mining and subsequent activities during a visit to W-06, one may estimate that W-06 was exploited five times in total. Given this, the mining pits cluster including Pit-01 and the workshop cluster including Unit 3-D might represent the third exploitation at W-06.

Finally, a few comments should be made about the distribution of robust, cortical flakes that were by produced during the core preparation process. Interestingly, in contrast to exhausted cores, they are scattered on the northern fringe of the workshop zone rather than in and around each workshop. This probably means that light-duty debitage were thrown away toward disused mining pits. The mine zone may subsequently have been reused as another waste zone.

The Finds from W-06

W-06 contains an enormous volume of flint artifacts. However, the collection described below is composed only of the samples excavated from the long trench and the two workshops; other artifacts that are scattered outside of these loci are left *in situ* for future studies. Apart from a single basalt hammer stone (**Fig. 22: no. 15**), the collection, several thousands in total, consists exclusively of flint chunks and artifacts. Since the examination is still underway, only a few general points are noted below.

The first point concerns the peculiarity in relative frequency among artifact classes. The collection is composed mostly of mined nodules and ro-



20. W-06: workshop unit 4-C and unit 3-D.

21. W-06: workshop unit 4-C (looking east).

bust flakes detached from them. In contrast, tabular scraper cores (**Fig. 22: no. 1-7**) and blanks (**Fig. 22: no. 11, 13, 14**) are much lower in frequency. Still less frequent are finished products (i.e., tabular scrapers), which occurred only in a few pieces (**Fig. 22: no. 9, 12**). All these are natural consequences of the mine-related assemblage. Of particular notice is the marked scarcity of tabular scraper blanks and finished products, which clearly indicates that flint-knapping activities at W-06 were limited to the initial stages from core preparation to blank detachment. The flint assemblages of Structure 01 and 07 (Fujii 1998: 131-133; 2000: 155-160), for example, prove that subsequent processes posterior to blank detachment were transferred to the Layer 3 composite burial enclosures on the hilltop area. This intra-site space division, along with the intra-area sub-division at W-06, attests that the tabular scraper production at QATW was systematic in nature beyond expectation.

The second point is related to the quality of flint that was mined at W-06. Flint nodules at W-06, to say nothing of cores made of raw material sorted among them, are characterized by their good quality as flint. They are large in size, homogeneous in texture, and, more importantly, have a slight curvature on their cortical surfaces – basic conditions for the detachment of larger, cortical blanks suitable for the production of tabular scrapers. The opposite holds true for raw material at W-04, for example, which mostly comprises smaller, heavily painted, or even naturally cracked, flat-surfaced tabular chunks. Naturally, the difference in raw material directly affects the quality of tool blanks detached from them, which, in turn, is mirrored on the quality of finished products. Tabular scrapers made of raw material of good quality are generally larger in size and relatively homogeneous in morphology, whereas those made of raw material of poor quality are smaller and often irregular in morphology. In light of this, one can make a rough estimate of the interrelation between a core concentration area (the first step workshop) and a Layer 3 composite burial enclosure (the second step workshop). W-06, for example, may have been a source of flint supply for Structure 01 and 07 where fine tabular scrapers were produced in large quantities.

Another point to notice is that equipment related to tabular scraper production has rarely been found at W-06. As noted above, W-06 yielded only a single piece of basalt hammerstone _ a marked contrast to the composite burial enclosures at the hilltop area, where a number of anvil stones and hammerstones were found (Fujii 1998: fig. 11; 1999: fig. 8, 9; 2000: fig. 11; 2001: fig. 19). This contrast is due in part to the difference in function between the two kinds of workshop; yet, it cannot be ruled out that the equipment was brought from the first step workshop to the second step workshop for the subsequent tasks.

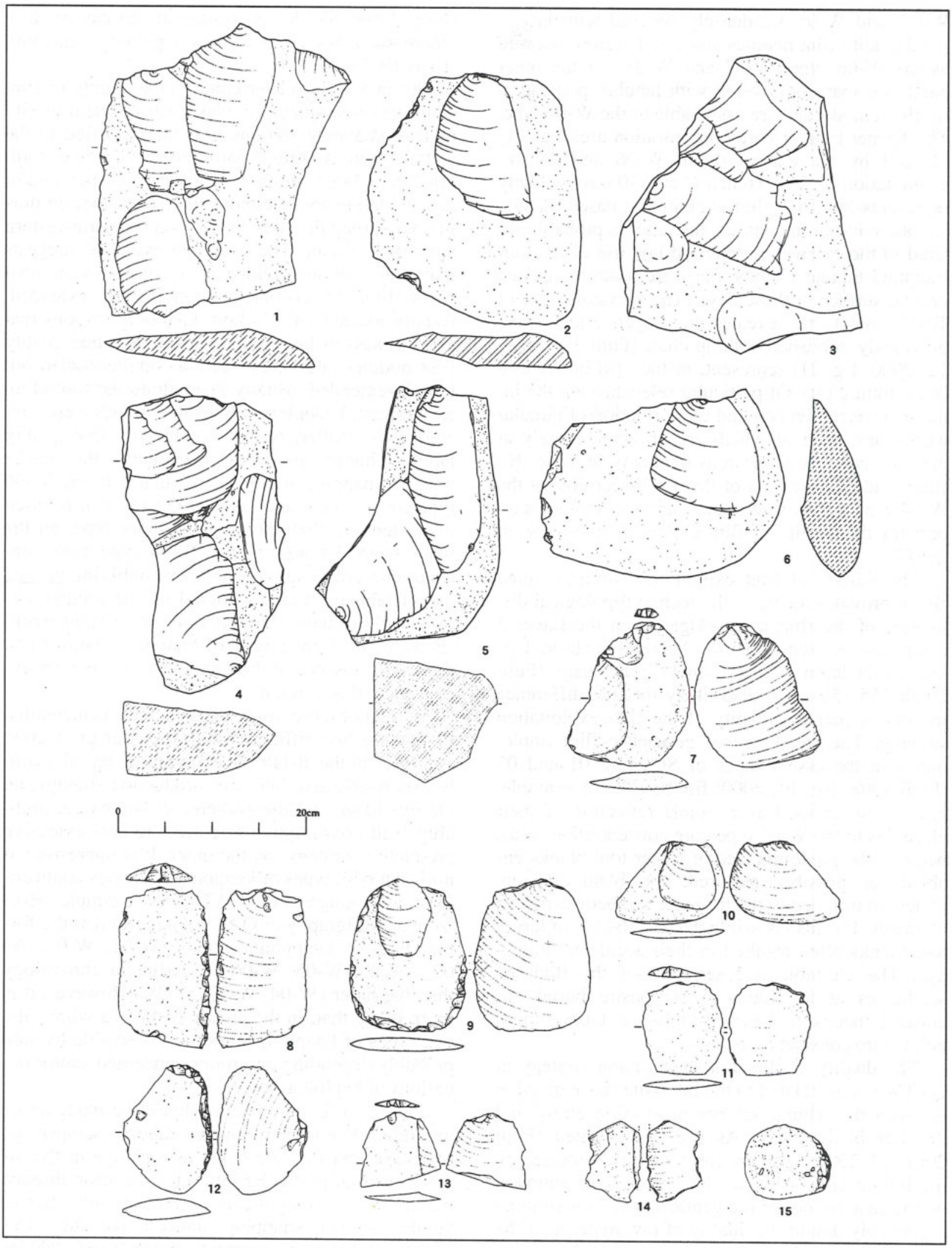
Discussion 2: Archaeological Implications of W-06

A series of basic data retrieved from the excavation at W-06 throws new light on some aspects of QATW hitherto poorly understood. The following two issues will be briefly discussed here: first, the duality of the flint exploitation strategy at QATW and, second, the total production of tabular scrapers at the site.

Duality of Flint Exploitation Strategy at QATW

As noted above, raw material mined at W-06 is characterized by good quality and larger size. Of particular importance is the gentle curvature of cortical surfaces, which enabled ancient flint knappers to flake longer, standardized tool blanks suitable for the production of tabular scrapers. Contrary to this are tabular chunks scattered at W-04, for example, which are poorer in quality, smaller in size, and practically null in surface curvature. Needless to say, the difference in the quality of raw material affects the quality of cores, which in turn results directly in the difference in the quality of tool blanks. Cores at W-06 often have plural, partly overlapping, longer flaking scars that end in featheredge **(Fig. 22: no. 1, 3)**, whereas cores at W-04 usually have a single, relatively shorter, but broader flaking scar that often ends in hinge-fracture. It should also be noted, however, that not only the quality of raw material but also the presence or absence (or the degree of elaboration) of platform preparation is responsible for the difference.

Core concentration areas at QATW can be classified into either of the two. W-01, W-02, W-02',



22. W-06: the finds (mainly from Pit-01 and workshop unit 3-D and unit 4-C).

W-03, and W-05 are densely covered with larger, good quality flint nodules and are, therefore, viewed as the W-06 type. W-07 and W-08, on the other hand, are sparsely covered with tabular, poor quality flint chunks and are assignable to the W-04 type. The former type of core concentration areas, as evidenced by the excavation at W-06 and the re-examination of Test Trench C at W-03, most likely represents intensive flint exploitation based on systematic mining; in contrast, the latter is probably related to the extensive, rather ad hoc use of natural-fractured tabular chunks that were scattered on the ground surface in those days (The reexamination of Test Trench C has revealed that Layers 3 to 5 in the previously published column chart [Fujii 1999: fig. 12; 2000: fig. 21] represent, in fact, fill layers in a large mining pit). Of particular relevance are the intra-area space division and the formation of circular workshops, both of which are observed merely at the core concentration areas of the W-06 type. No clear evidence for both of them is discernible at the W-04 type core concentration areas – another support for the duality of flint exploitation strategy at QATW.

The duality of flint exploitation strategy noted above provides a clue to the techno-typological difference of the flint assemblages from the Layer 3 composite burial enclosures. Although a chronological explanation was presented previously (Fujii 2000: 155-159), it is also likely that the difference mirrors in part the duality of the flint exploitation strategy. The frequency of geometric flint implements in the assemblages of Structure 01 and 07 (Fujii 1998: fig. 10; 2000: fig. 9, 10), for example, may be understood as a simple reflection of their close ties to the W-06 type core concentration areas, because the predominance of larger tool blanks enabled, or possibly required, the blank-division, which, in turn, led to the frequency of geometric implements. It is also possible that the flaking of larger tool blanks often resulted in their accidental breakage. The chronological seriation of the flint assemblages at the Layer 3 composite burial enclosures needs to be re-established taking these points into consideration.

The duality of the flint exploitation strategy at QATW is also related to the intra-site space division between the tabular scraper production entity and the Jafr blade entity. As previously noted (Fujii 2001: 19; 2001: 185), the former entity is located on the hilltop area, whereas the latter is concentrated on the eastern foot of the gentle slope. This contrast is probably due to the duality of raw material at the two locations. It is not surprising that the Jafr blade entity, which is based exclusively on tabular chunks (Fujii 1999: 83-86), is located at the eastern foot where such raw material was supplied in quantity (Fujii 2002a: 33-36).

Put in a still broader context, the duality of flint exploitation strategy provides a key to the diversity of flint knapping stations thus far identified in the al-Jafr basin. As briefly introduced elsewhere (Fujii 2002b), a large number of tabular scraper and/or Jafr blade knapping stations have been located during our survey that was focused on the northwestern part of the basin. The available evidence suggests that they can be divided into the following two types: first, larger-scaled, often linearly extended, usually located on a hilltop, knapping stations that yield a mass of larger, less weathered, good quality flint nodules and cores; second, smaller-scaled but loosely-extended, usually lined along the foot of an escarpment, knapping stations that are sparsely covered with smaller, heavily weathered, poor quality tabular chunks and cores. Apparently, the former type of knapping stations corresponds to the W-06 type core concentration area at QATW that is based on systematic flint mining. The latter type, on the other hand, belongs to the W-04 type core concentration area, thus probably exemplifying ad hoc use of tabular chunks scattered on the ground surface in those days. The presence of circular workshops at the former type of knapping stations and their near absence at the latter serve as another evidence for this grouping.

In light of these observations, it is concluded that there were two different tabular scraper production strategies in the al-Jafr basin: the mine-based, mainly export-oriented, intensive production strategy, on the one hand, and the scattered chunk-based, probably self-consumption-oriented, rather extensive production strategy, on the other. It is interesting to note that both types of knapping strategies could coexist at a single site, QATW for example. Horizontal stratigraphy at QATW suggests that the former type of knapping stations (W-01, W-02, W-02_, W-03, W-05, W-06) is earlier in chronology than the latter (W-04, W-07, W-08). However, it is more likely that, in the al-Jafr basin as a whole, the two types of knapping stations existed side by side probably depending on groups concerned and/or occasions of exploitation.

Finally, a few comments should be made about the interrelation between the tabular scraper assemblage and the Jafr blade assemblage in the al-Jafr basin. Of particular interest is the near absence of Jafr blade components at hilltop, mine-based, tabular scraper knapping stations and their frequency at below-escarpment, chunk-based, tabular scraper knapping stations. This contrast, an exact

copy of QATW, is apparently due to the preference of the Jafr blade assemblage for scattered tabular chunks to mined nodules.

Total Production of Tabular Scrapers at QATW

The first key to this issue is the total number of cores that constitute a single workshop at W-06. According to a preliminary examination made by Masashi Abe, one of the staff members, it totals not more than 20 to 30. Considering also that each core has ca. 2 flaking scars in average, the total number of tool blanks produced at a single workshop amounts to ca. 40 to 60 in average. It is therefore reasonable to assume that some thirty workshops at W-06, as a whole, produced a total of one to two thousand tabular scraper blanks. It should be noted, however, that a large number of cores scattered outside these workshops push up the figure to some degree. Thus, the total number of tabular scraper blanks produced at W-06 must have been a few thousand.

The next key is the total number of core concentration areas at QATW. (Other factors – the size of each area, the density of cores at each area, the average frequency of blank detachment from a single core, for example – are all neglected here on the ground that W-06 is one of the most intensively exploited area and, therefore, an estimate based on the data from this area would provide a maximum value.) Supposing that the other eight core concentration areas thus far identified at QATW produced roughly the same volume of tabular scraper blanks as W-06, the total production at QATW would be a few tens of thousands. Loss and/or discard of tool blanks due to various reasons, if any, would be fully or excessively counterbalanced with both accidental and intentional blank segmentation (Fujii 1999: 79; 2000: 155-159). (Incidentally, QATE, much larger in area, probably produced tabular scrapers at least several times as many as QATW).

However, this figure for itself should not be overestimated, because what it represents is nothing more than the total production in a long term. Naturally, the production at any one time would be much smaller. Thus, the question is how many times ancient flint knappers visited QATW. Suggestive in this regard is the total number of burial cairns that are incorporated to the Layer 3 composite burial enclosures. (Since, as suggested earlier in this paper, these burial cairns were probably constructed in connection with the death of a chieftain, their total number (ca. 50) can be taken as the minimum number of visits to QATW by the Layer 3 population.) Given the close ties between the core concentration areas (as the first stage workshop) and the Layer 3 composite burial enclosures (as the second stage workshop), it is reasonable to assume that the core concentration areas were also exploited by the same times. This means that the suggested total production at QATW (a few tens of thousands of pieces) should be divided by ca. 50 visits. Thus, the tabular scraper production per a visit would be some hundreds in total number or ca. 50 _ 100kg in total weight. Interestingly enough, this estimate is consistent well with the above view that the flint workshops at W-06 can be divided into five clusters, because the suggested total production at W-06 (a few thousands tabular pieces) divided by five visits is the same value, namely some hundreds per a visit.

This estimate, if acceptable, casts doubt on the recently advanced view that the Jafr flint-production complex, including QATW and QATE, reached an industry level (Quintero *et al.* 2002). Rather, it seems more likely that the long-termed exploitation, along with large size and wasteful use of raw material, resulted in the formation of the breathtaking panorama of this complex. Another support for our view derives from the duality of the tabular scraper exploitation strategy. Given that tabular scrapers produced at chunk-based knapping stations were largely used for self-consumption among pastoral populations and that only those produced at mine-based knapping stations were traded, the total volume of tabular scraper trade suggested by some scholars (Quintero *et al.* 2002: 45-46) may need to be revised downward to a considerable extent. It seems that this view is consistent with the unexpected scarcity of imported tabular scrapers at town and rural settlements to the west.

The revision is also concerned with the transportation method of tabular scrapers. Some scholars claim that a mass of tabular scrapers produced in the al-Jafr basin probably required the transportation by donkeys, which had just been domesticated in those days (Quintero *et al.* 2002: 45). However, the suggested total production per a visit to W-06 (i.e., some hundreds in total number or ca. 50-100kg in total weight) seems to imply the transportation by manpower rather than donkeys. Highly suggestive in this regard is the total number of stone hoes that were found at a burial cairn of Structure 51 (Fujii 2002a: 31-33), which implies that the group size of the Layer 3 flint knappers is estimated at least a few dozen. Given this, each member would have carried a few dozen (or a few kilograms) of tabular scrapers _ an easily portable volume for manpower. Whatever the case, it seems more reasonable to assume that the Jafr flint-production complex, though really breathtaking in

its appearance, represents, in fact, the final picture of steady flint exploitation. It may be interesting to note here that the formation of the Layer 4 structural entity at QATW can also be best understood within a similar framework (Fujii 2001: 33-37; 2002c).

Concluding Remarks

To conclude, six excavation seasons at QATW, a brief chronological summary, though still tentative in nature, will be presented below as schematic figures (**Figs. 23, 24**). The available evidence suggests that the chronological sequence of QATW covers a long time range from the Late Neolithic to Early Bronze Age, with the intermediate period between the two being probably skipped in part. Since much has been discussed in the previous reports (Fujii1998: 136-137; 1999: 86-87; 2000: 164-167; 2001: 19-22; 2002a: 36-38), only a few notes are added below:

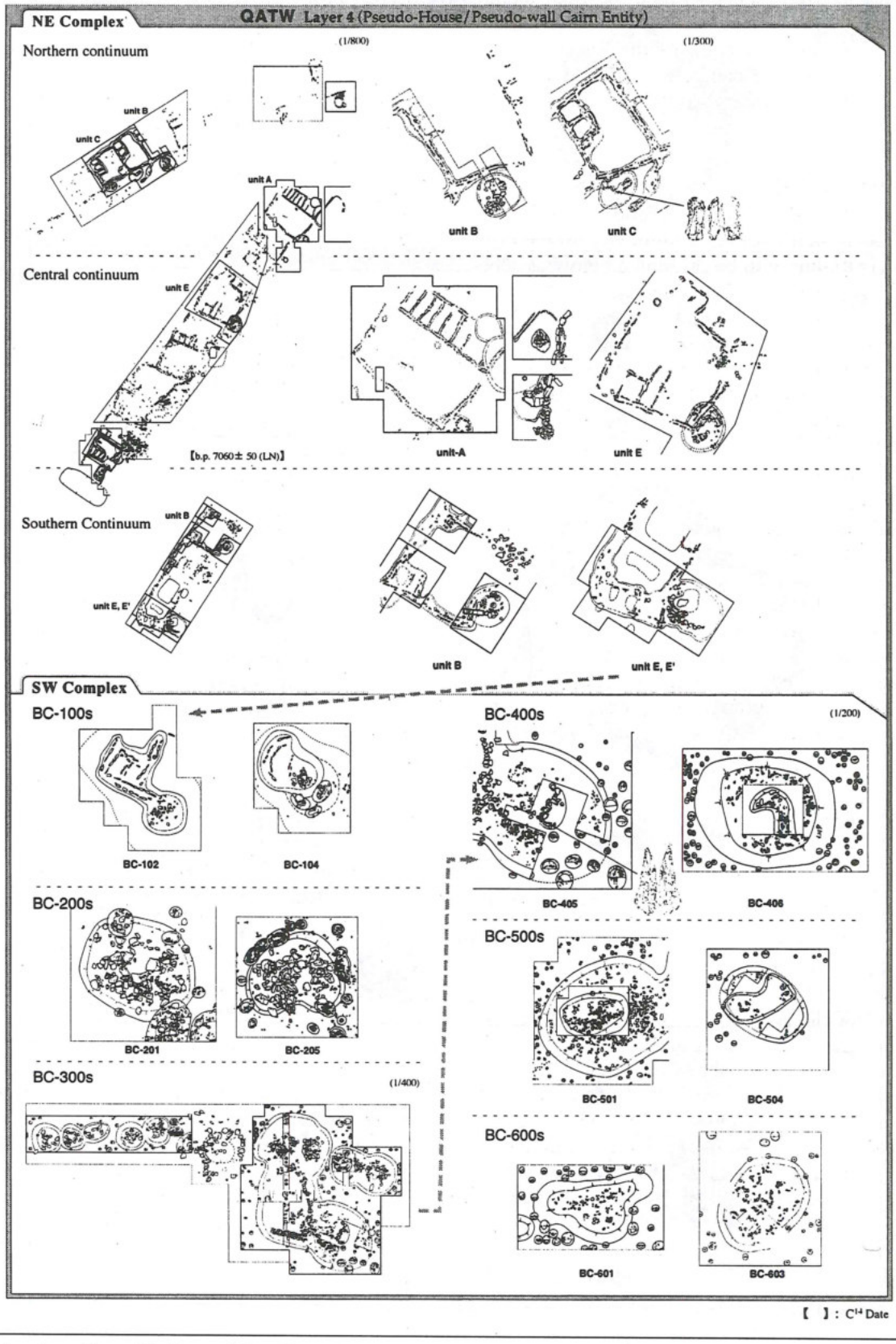
1) The chronological sequence of the Layer 4 burial cairn entity is divided into two: the pseudo-house type, continuous burial cairns at the NE Complex and the pseudo-wall type, isolated burial cairns at the SW Complex. The chronological seriation within each complex is fully established based on both typological and horizontally-stratigraphical evidence, except that the assignment of BC-300s in the SW Complex is yet to be further examined (Fujii 2002a: 36-38). In light of typological comparisons and a single radiometric date from Unit E in the Central Continuum, this entity can be dated to the Late Neolithic, although later examples of the pseudo-wall type of burial cairn, BC-500s and BC-600s in particular, may belong to the early half of the Chalcolithic.
2) The Layer 3 composite burial enclosure entity, on the other hand, can be safely dated to the latter half of the Early Bronze Age on the basis of plural radiometric data and comparative studies of the finds, tabular scrapers in particular. The available evidence suggests that a series of composite burial enclosures in the NE Complex (Structure 03, -01, and -07) belong to the EB III and that Structure 51 in the SW Complex are assigned to the very end of the EB III. Structure 2001 at QATE, which has not yet excavated, may represent an earlier form of this entity. It should be noted, however, that there is a room for further discussion on the relative chronology of Structure 07 (Fujii 2002a: 38).
3) Also problematic is the chronology of Structure 1001, a small-scaled, Jafr blade-related, composite burial enclosure that is located below the eastern slope of QATW (Fujii 1999: 83-86; 2002a: 34-36). However, the available evidence suggests that it is roughly contemporary with the composite burial enclosures in the NE Complex, Structure 07 in particular.

The excavations at *Qā' Abū Ṭulayḥa* West, which have successively been conducted from 1997 to 2002, have finally come to an end. However, as is the case with every archaeological excavation, it is a temporary close rather than a true end. I am afraid that our investigations were too limited to fully understand the archaeological implications of this unique site. Yet, I do believe that a wide array of basic data retrieved from QATW would provide a reliable base for further investigations of the prehistoric Badia, another dimension of the Levantine archaeology. The next project, which aims in part to the reassessment of the results of the QATW excavations in a broader context, is due to start in the spring in 2003, focusing on the northwestern al-Ḥarra and al-Ḥamada of the al-Jafr basin.

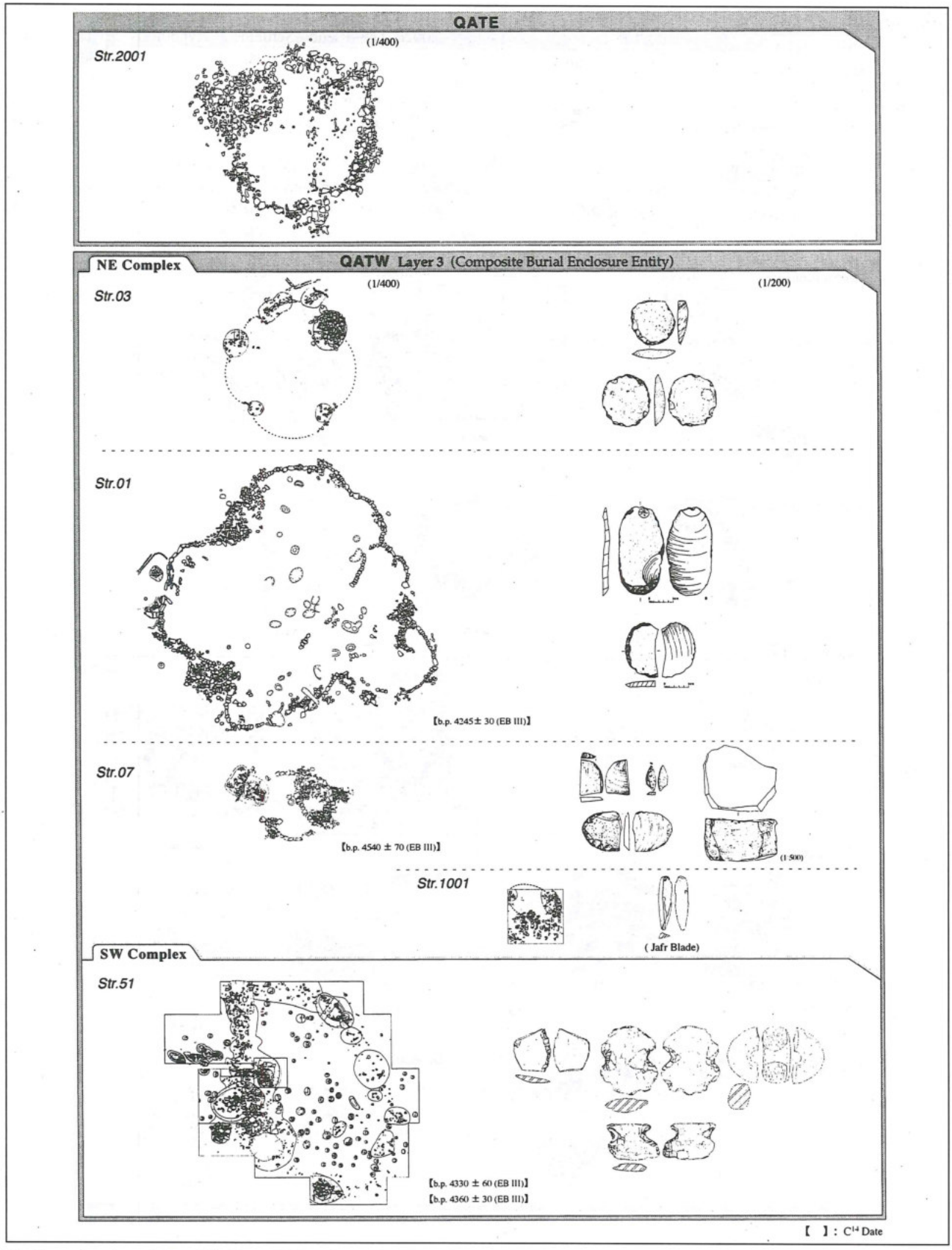
Acknowledgements

I would like to express my gratitude to the Department of Antiquities of Jordan for their kind cooperation from the beginning of the project. I am also deeply grateful to the Ministry of Education and Science of Japan (International Scientific Research Program: Grant No. 13571037 and 12571041) and the Mitsubishi Foundation (Grant No. 10, 2001) for their financial support. My thanks also go to Mr. Mohammad Abdulaziz, representative of the Department, and the members of the staff (Masashi Abe, Aya Takahashi, Ritsushi Takeuchi, Norihiro Tanaka, and Yoshie Sugimoto), whose support was essential to this season. Finally, I wish to thank everyone who has been concerned with the excavations – Mr. Emsaytif Suleiman Emsaitif, representative of the Department from the first to fifth seasons, and Mr. Nazeh Fino, one of the staff member in 1997-1998, to list a few. Both cheerful workers from al-Ḥusainiyya and the beautiful al-Ḥamada in the al-Jafr basin are also deeply appreciated.

Sumio Fujii
Faculty of Letters
Kanazawa University
Kakuma-machi, Kanazawa
920-1192, JAPAN



23. Tentative chronology of the Layer 4 Complex at QATW.



24. Tentative chronology of the Layer 3 Complex at QATE and QATW.

Bibliography

Avner, U.

1984 Ancient Cult Sites in the Negev and Sinai Deserts. *Tel Aviv* 11: 115-131.

1990 Ancient Agricultural Settlement and Religion in the Uvda Valley in Southern Israel. *BA* 53/3: 125-141.

Fujii, S.

1998 Qa' Abu Tulayha West: An Interim Report of the 1997 Season. *ADAJ* 42: 123-140.

1999 Qa' Abu Tulayha West: An Interim Report of the 1998 Season. *ADAJ* 43: 69-89.

2000 Qa' Abu Tulayha West: An Interim Report of the 1999 Season. *ADAJ* 44: 149-171.

2001 Qa' Abu Tulayha West, 2000: An Interim Report of the Fourth Season. *ADAJ* 45: 19-37.

2002a Qa' Abu Tulayha West, 2001: An Interim Report of the Fifth Season. *ADAJ* 46: 15-39.

2002b A Brief Note of the 2001-2002 Winter Season Survey of the Jafr Basin, Southern Jordan. *ADAJ* 46: 41-49.

2002c The Pseudo-Settlement Hypothesis: Evidence from Qa' Abu Tulayha West, Southern Jordan. *Archaeozoology of the Near East* V: 183-196.

Graesser, C.F.

1972 Standing Stones in Ancient Palestine. *BA* 35/2: 34-63.

Levy, T.E.

1986 The Chalcolithic Period. *BA* 49: 82-108.

1995 Cult, Metallurgy and Rank Society - Chalcolithic Period (ca. 4500-3500 BCE). Pp. 226-243 In Levy, T. E. (ed.), *The Archaeology of Society in the Holy Land*. London: Leicester University Press.

Quintero, L.A. and Wilke, P.J.

1998 Archaeological Reconnaissance in the al-Jafr Basin, 1997. *ADAJ* 42: 113-121.

Quintero, L., Wilke, P.J. and Rollefson, G.O.

2002 From Flint Mine to Fan Scraper: The Late Prehistoric Jafr Industrial Complex. *BASOR* 327: 17-48.