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CHAPTER 12

A REFITTED GRAVETTIAN BLADE CORE FROM HUCCORGNE: ASPECTS OF A LITHIC OPERATORY CHAIN

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INTRODUCTION

Huccorgne is an open-air site located in the Méhaigne river valley of central Belgium. Situated near sources of Maastrichtian Hesbaye flint, this loess deposit was excavated initially in the late 1800's and periodically thereafter through the mid 1970's by a series of amateur and professional researchers. Under the co-direction of Lawrence Straus of the University of New Mexico and Marcel Otte of the Université de Liège, this site was re-excavated in 1991-1993 (see chapter 1, Fig. 3). These recent excavations have revealed a series of deposits of Gravettian affiliation which date preliminarily to 23,170 +/- 160 BP (a conventional date on a bulk sample from the Destexhe dig) and several dates in the 26,000-28,000 kya range. Initial excavations in an area extending westward from the railroad cut in 1991 revealed a thin scatter of chipped stone artifacts located in a beige, compact loess associated with poorly preserved faunal remains including reindeer, horse, and mammoth. From this assemblage, a blade core of Hesbaye flint was recovered to which 12 broken blades, flakes and pieces of debris were found to conjoin (Photo 1). These artifacts (Photo 2) were found in association with wooly mammoth ribs and a series of limestone slabs in a "hearth-like" configuration suggesting the possible presence of ephemeral structures. Continued excavations in 1992 yielded 17 additional lithic conjoins to this blade core, as well as one additional blade core of a slightly more granular flint and one bladelet core. Analysis of the lithic refits to the first core of Hesbaye flint have yielded a number of insights in the patterns of site usage at the Huccorgne site during the Gravettian period. This paper reports upon these findings.

MATERIALS AND METHODS

The methodology used in the analysis of the blade core involved the systematic observation of all chipped stone implements of Hesbaye flint that possessed morphological characteristics that matched the color, patination, cortical surface, grain size, and inclusions of the core. Then, pieces were conjoined to the core on the basis of any attributes of Hertzian morphology that might indicate a direct correspondence. Those artifacts that directly refit were set aside until a sub-assemblage was formed containing only artifact refits (see Table 1).

Maps detailing the spatial position of the artifacts as recovered during excavation were then prepared as a means of gaining insight into patterns of site formation and disturbance processes that might be present (see Figure 1). Finally, a detailed technological analysis of the core was performed that examined the operatory chain involved in the reduction of the core.

RESULTS

Technological aspects of core reduction

Though some flakes are missing, the original nodule was reconstituted (Figure 4). Its initial dimensions were evaluated to be 153 x 75 x 65 mm. It is a thick elongated block of flint as shown by the minimal prism that contains it (Figure 2, Stage 0).

The orientation of a block or core by the minimal prism method (Guilbaud 1985) derives from the orientation of unmodified and retouched flakes by using the minimal rectangle (Laplace 1977), and for pebble tools, by using a prism, the *prisme directeur* (Thomas 1973). This method lets us follow the evolution of core reduction in three dimensions in relation to the prism and its three categories of planes: horizontal (H), transverse (T), and sagittal (S). Apart from some slight variations, the minimal prism, in this case, conserved the same or a similar position throughout the core reduction process. The prism became progressively flatter in the course of knapping.

From the beginning, once the core had been prepared prismatically, with a lateral crest (Figures 2 and 3, Stage I), the knapper tried to detach a series of blades longitudinally across face 'H' of the prism from a minimally prepared transversal striking platform (Figure 4, Stage II). This attempt seems to have failed. Perhaps partly for this reason, the knapper decided to prepare a crest at the other end of the core (Figure 4, Stage III) so as to detach blades from a striking platform opposite the first (Figure 5, stage Iv). This second attempt wasn't productive either, as the flakes detached were not very elongated. Finally, traces of a third attempt was noted on the first striking platform (Figure 5, Stage V.12), which caused the block to shatter (Figure 5, Stage V.13) following preexisting thermal fracture planes.

The near absence of removals from any striking platform in the transversal plane shows clearly that the intention of the stoneworker was to conserve as much as possible of the core's original elongation without wasting raw material. This probably shows a desire to make long blades as efficiently as possible. From this perspective, analysis of the conjoins indicates a manufacturing failure because, apart from two crested ridge blades (Nos. 7 and 10), no other elongated blades were found to refit onto this core. Furthermore, core reduction was halted when the core broke accidentally.

Implications for contemporaneity of lithic conjoins

Pieces from the latest stages of lithic reduction (Phases IV & V) are weathered in a manner that is consistent with severe dehydration of the internal crystalline structure. This weathering is manifested in; (1) cracking and fissuring of the core, its associated chipped stone flakes, and various pieces of core debris, (2) surface patination of later removals unlike that for material removed in earlier stages of reduction, and (3) 'blue' color of artifacts that were later removals which, upon excavation, turned white when exposed to air.

When compared to earlier removals from the core, this evidence for dehydration of the late removals is puzzling in that earlier removals contain a different surface patination, with no examples of internal crack propagation, and were found not to have a deep blue color which patinated white. Rather, these artifacts came out of the ground grey and remained so.

We suspect that this different color could be a product of rehydration of silica by water such that a new hydration layer was rapidly formed by the core and its refits following excavation.

This has implications, however, for site formation process in that this implies that these artifacts, though found in close proximity to one another in both vertical and horizontal space (see Figure 6) were subjected to different micro-environments. The relative difference in the presence of internal cracks and fissures (Photos 3 and 4) in artifacts that were removed during earlier and later stages of lithic reduction confirms the time differential in core reduction since fissures in some late stage removals were found to extend across the surface of the core, but *not* across surface planes of earlier removals. Finally, it is important to reiterate that pieces from earlier stages of reduction (Phases I-IV.10) are flake and blade removals, while later stages (Phases IV.11 & V) are represented mainly by angular debris that are the products of unintentional breakage as a function of material stress. This two-episode sequence of core reduction is also shown by discontinuity in the location of early and late stage artifacts (see Figure 6), in that early and late stage reduction seems to be spatially discrete.

DISCUSSION

From the perspective of a prehistoric occupant of Huccorgne, the reduction of the core analyzed was largely a failure. Early removals produced few blades, while later ones initiated sufficient stress within the core to result in material failure. From the perspective of the archaeologist, this core is interesting as it provides evidence for site reoccupation and raw material reuse at different time periods within the site. Later removals in the sequence of the lithic operatory chain of this core posses attributes that are consistent with severe dehydration of internal moisture. We posit that this may be the product of exposure to severe cold certain to have occurred especially in winter at the beginning of the Upper Pleniglacial.

It is curious, however, that earlier removals, though spatially proximate, do not possess similar evidence for internal structure dehydration. This has implications for overall site integrity in that, though the site seemed during excavation to be the product of a single, limited occupation, this core provides evidence for site reuse. Despite rapid loess deposition at the site, the core, because of its size, must have been exposed for some unknown time (probably at least one winter) between successive human occupations of the site.

The question that must now be asked is how long was the period between visits? Was it during a single lifetime? Was it by a different social unit? Methodologically, this issue may not be resolvable, in that in order to address it, a scale must be found to compare the relative hydration rates of Hesbaye flint under glacial conditions in North Central Europe.

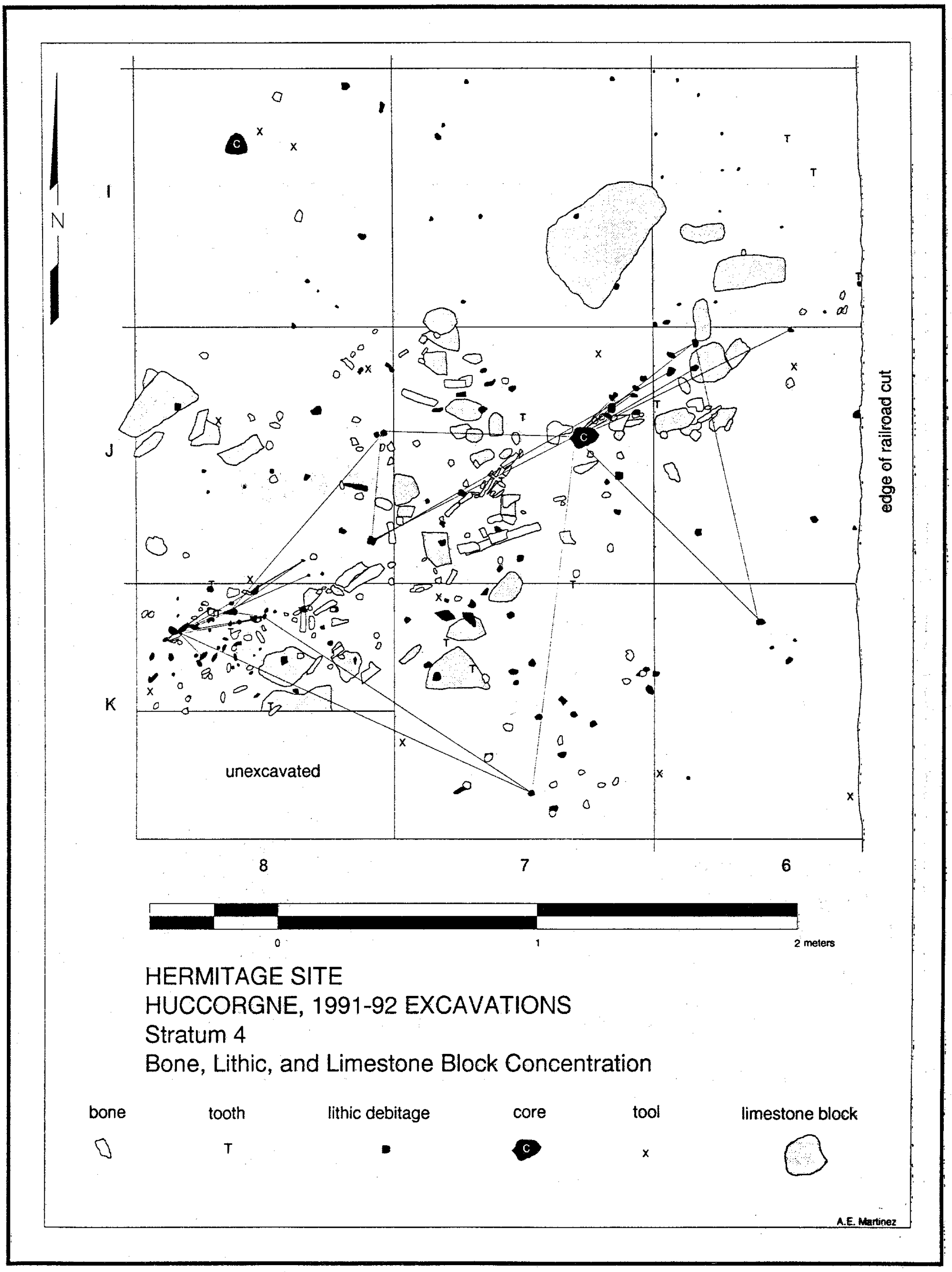


Figure 1. General map of feature containing refits.

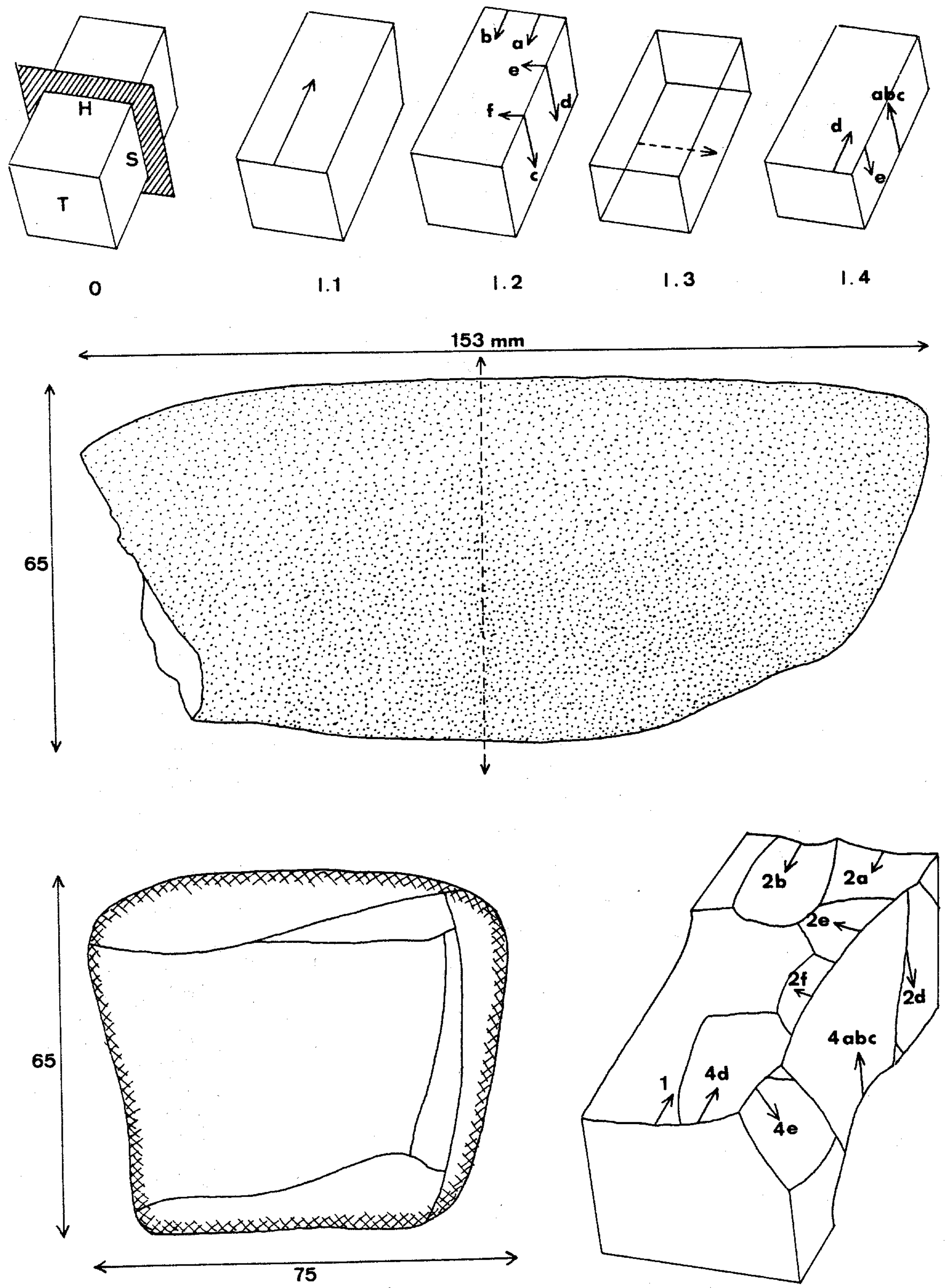
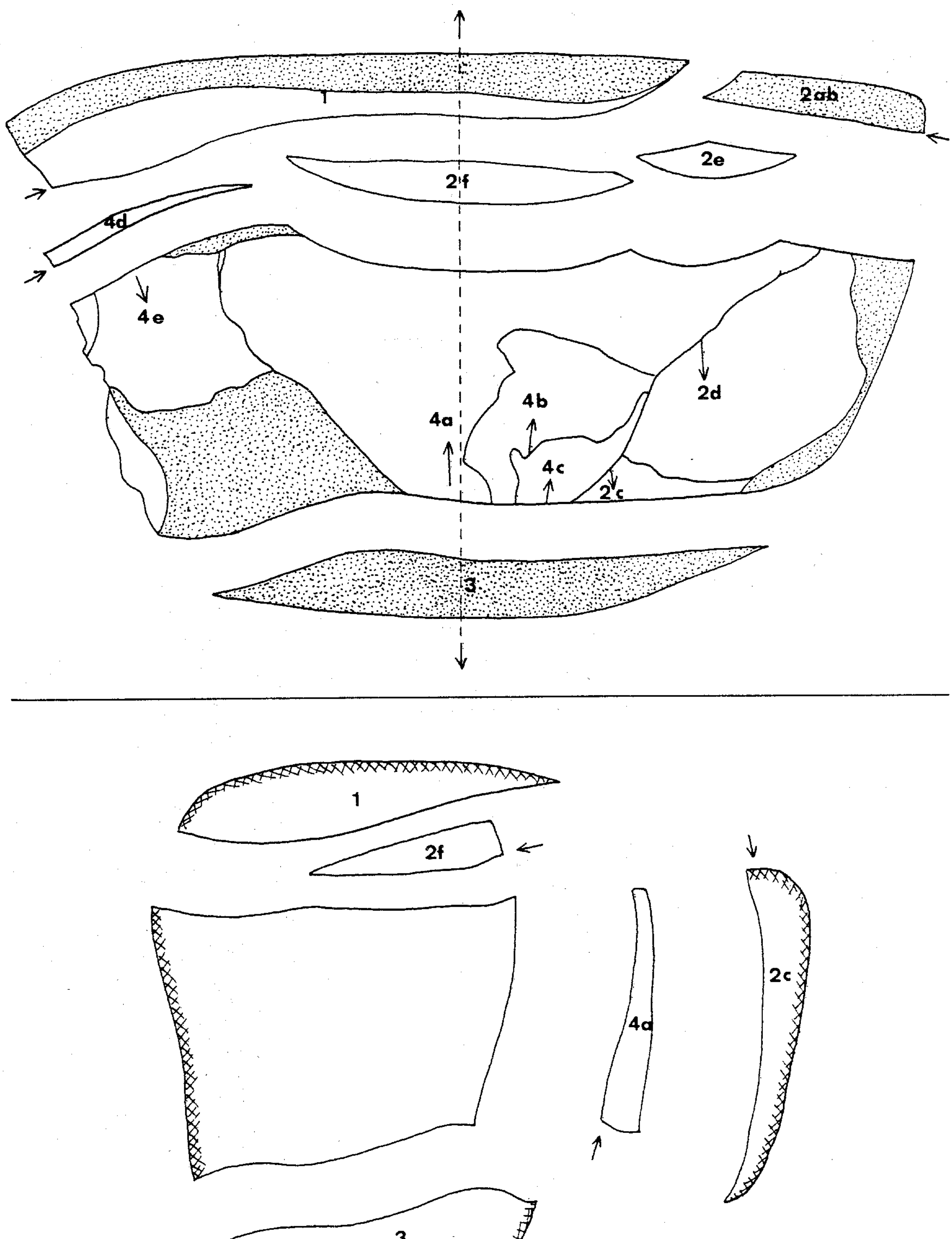


Figure 2. Detail of technological analysis.



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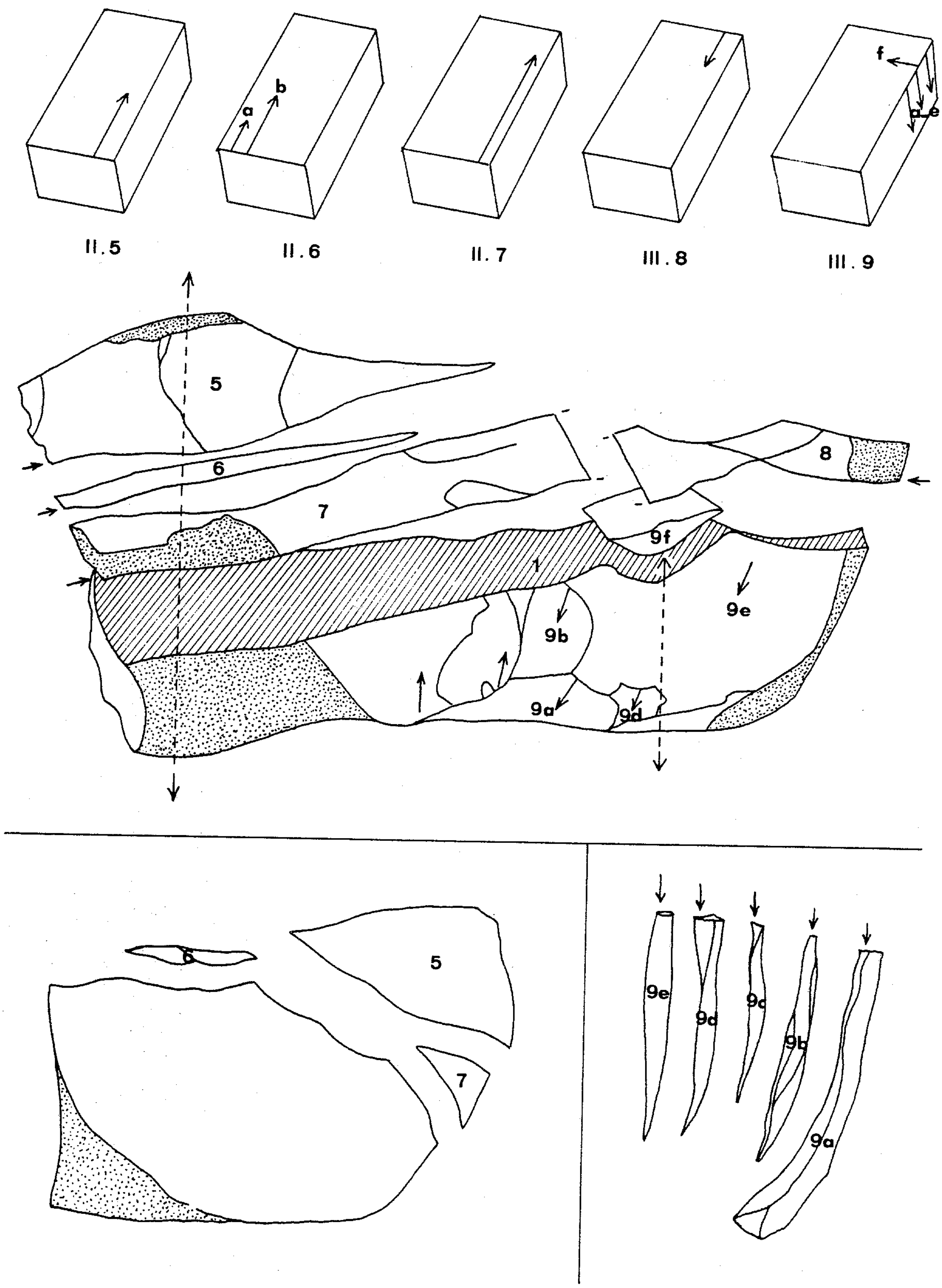

Figure 4. Detail of technological analysis.

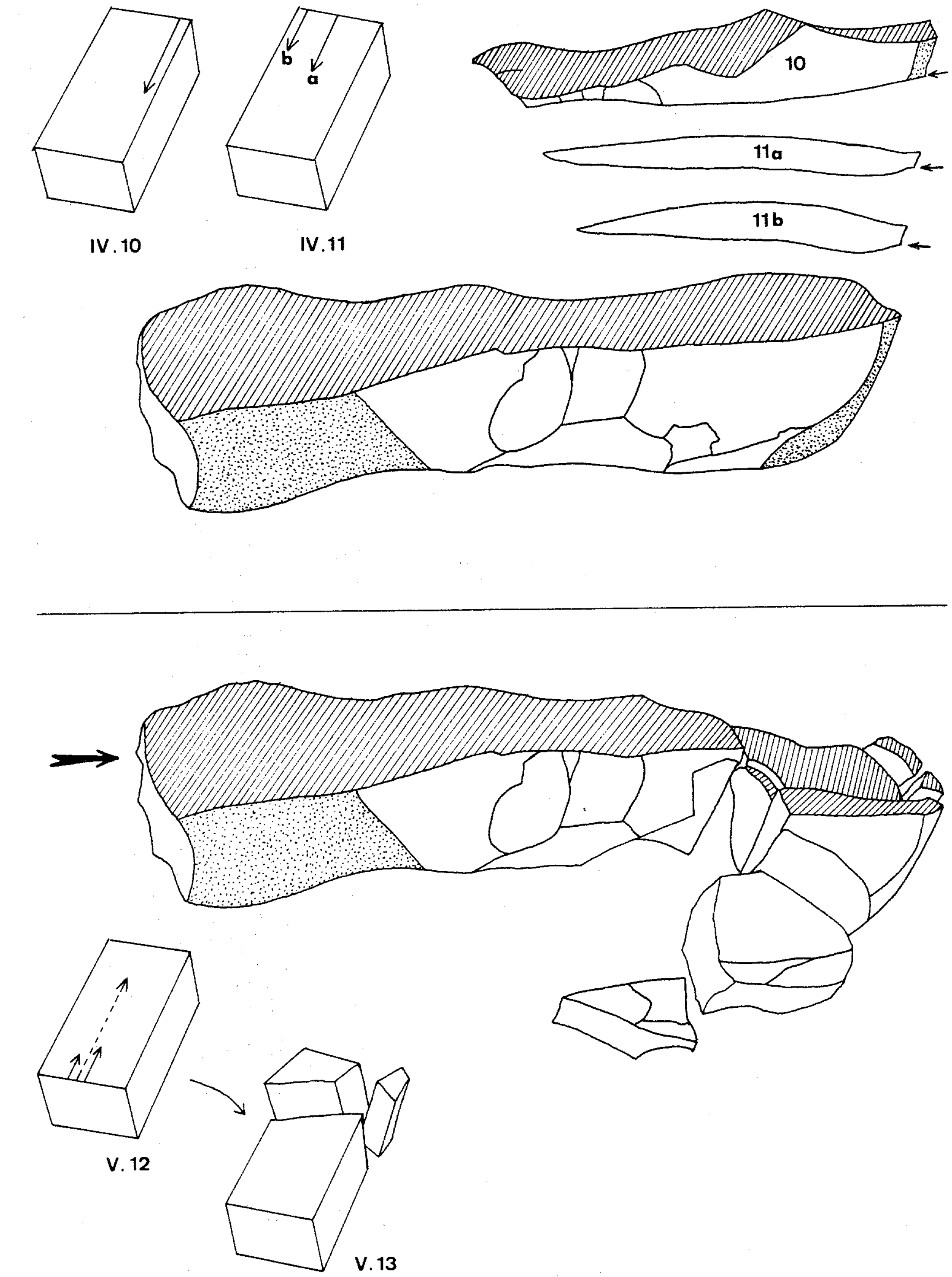

Figure 5. Detail of technological analysis.

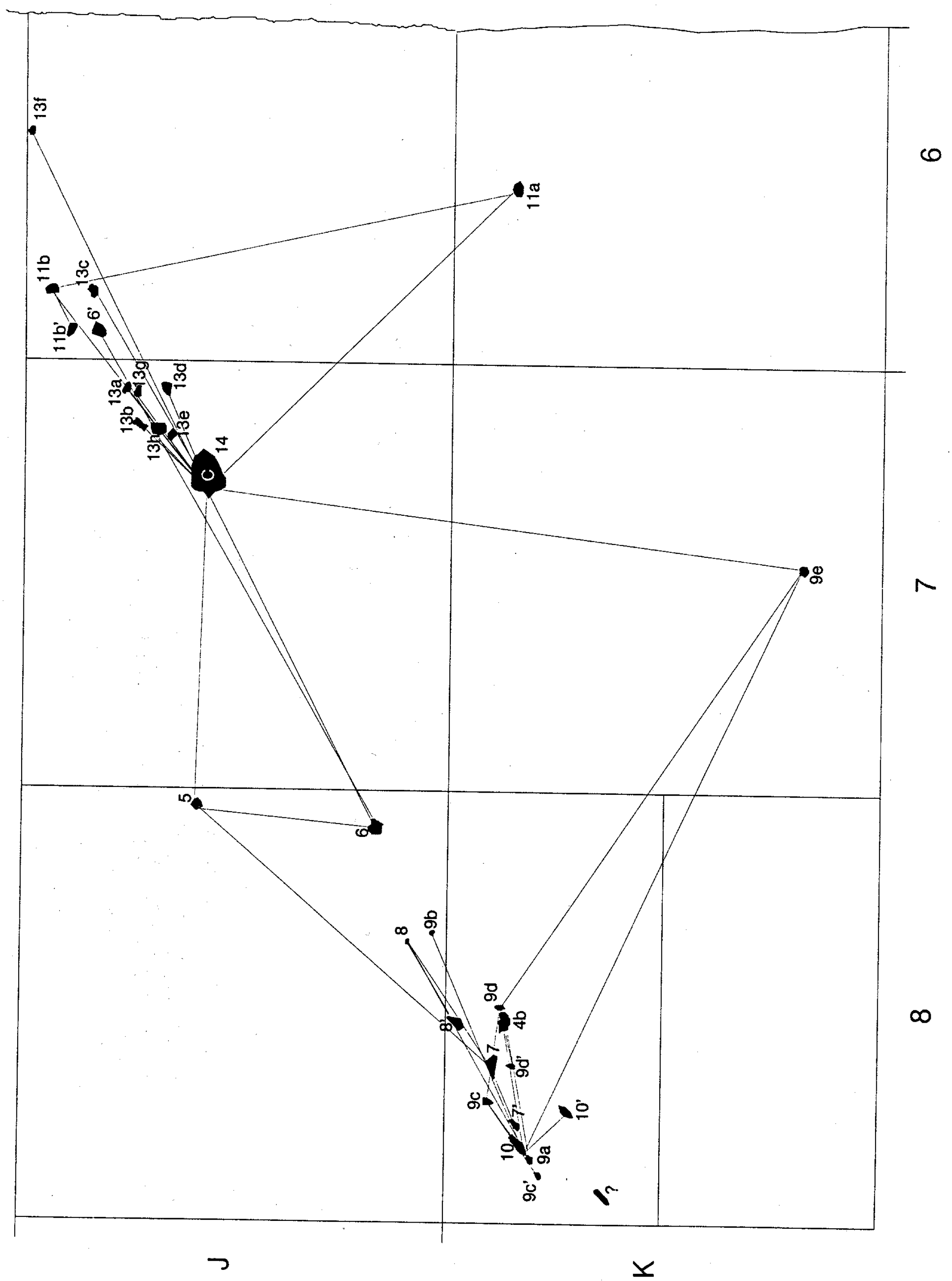

Figure 6. Distribution of refitted artifacts.

Photo 1. Close-up of refitted core.

Photo 2. Refitted artifacts constituting the core.

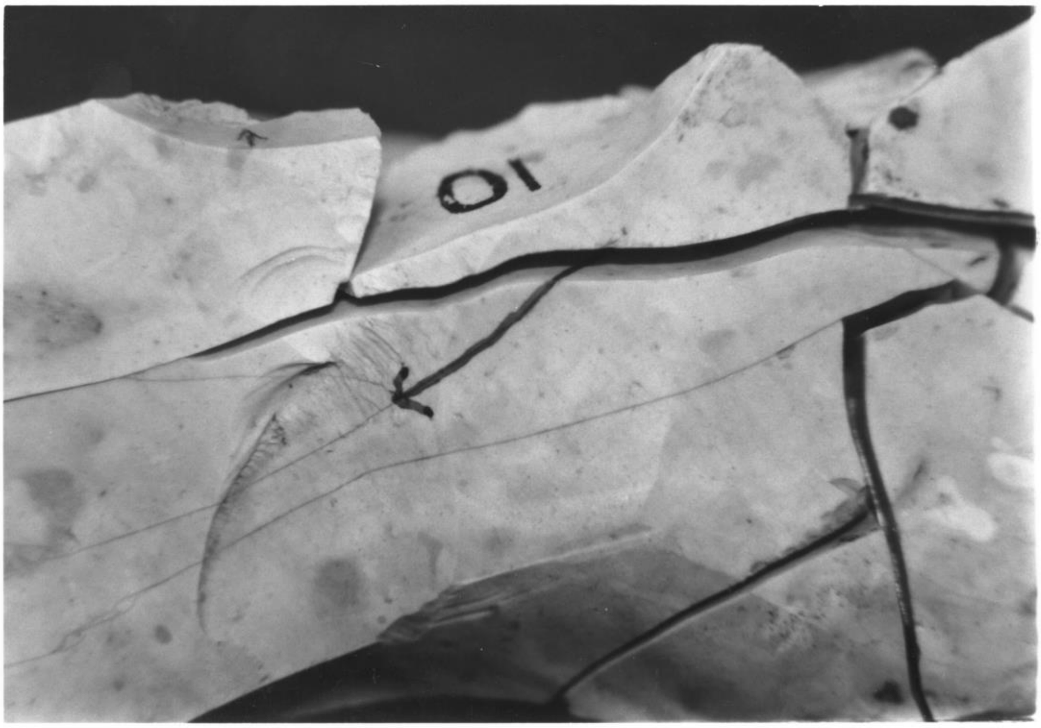

Photo 3. 15x magnification of core fissure.

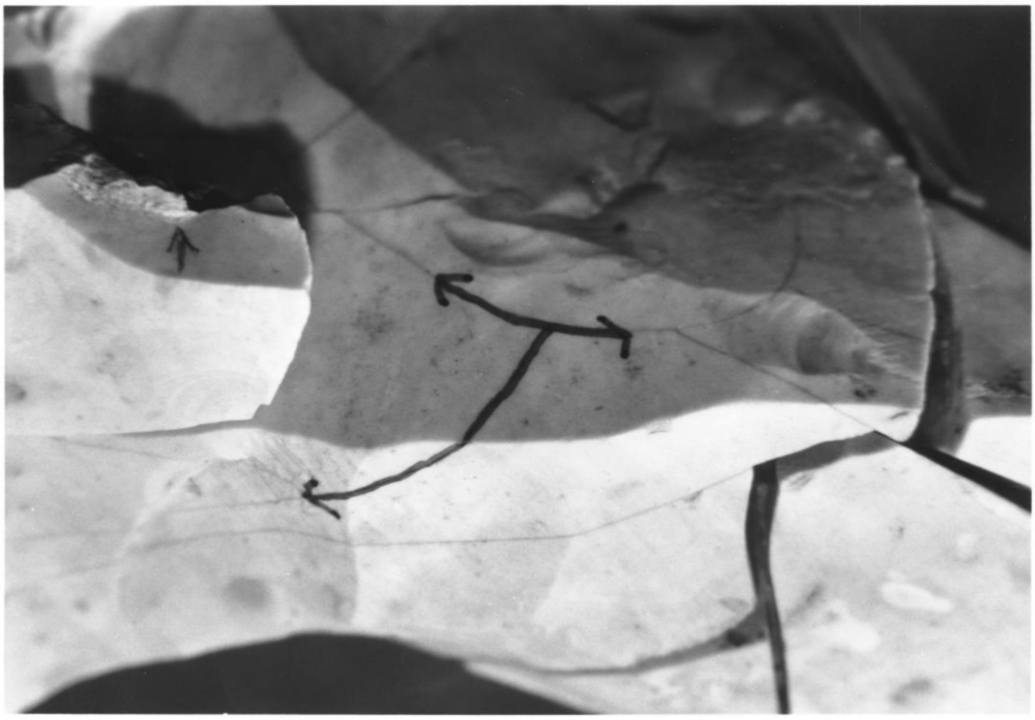

Photo 4. 15x magnification of core fissure.