Preiceramic Chronology of the Kantō: ICU Loc. 28C

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Abstract Nine places on the ICU Campus, Mitaka city, Tokyo, have yielded preceramic material. At Loc. 28C, in the Tachikawa terrace by the Nogawa, the material was grouped as A, B and C in the soft-loam and upper part of the hard-loam (28C Upper) and C' in the middle hard-loam (28C Lower) with main tool types as follows: A: trapezes with a scraper; B: points, backed-blades, and gravers; C: a point and a trapeze; C': backed-blades. 28C Upper tools are of obsidian, brought in from Mt. Hakone; 28C Lower are of local stone, from the Musashino gravel bed. Tools comprise 34% of the total weight of the obsidian; they lack prepared surfaces and many retain some natural surface. The tools of local stone have prepared surfaces and are generally small, but the flakes are large, and few retain any natural surface. The differences are due to the availability of materials and the more efficient use of obsidian. Similarities to the Moro knife type suggest that Moro may be contemporaneous with 28C Upper, also with Tsukimino I, and Sunagawa follows shortly after. The backed-blades of 28C Lower are similar to Ichibazaka examples, placing the latter after Moro.

ICU Campus and the Preiceramic Material

The post office designates the ICU campus as 3-10, Ōsawa, Mitaka city, Tokyo-to. Situated in the southwest corner of Mitaka city, it occupies a part of the western edge of the Musashino plateau and is cut through more or less diagonally by the Nogawa, with the Tachikawa terrace lying below.

Over the years several places yielding Jōmon material have been excavated and reported (Kidder 1959; Kidder and Koyama 1968). Two preceramic levels were reported for Loc. 1B, the industry being represented only by a core and sidescraper. Several heat-cracked pebbles were also found (Kidder 1959: 80–82). In the next decade, as a result of construction work or natural hillside erosion, a total of nine preceramic locations have been discovered, either on the Musashino plateau (i.e. associated with the bluff to the north of the Nogawa) or the Tachikawa terrace (i.e. on land lying about 10 m. lower and to the south of the Nogawa) (Fig. 1).

By and large the places where the preceramic material has been noted over-
Fig. 1. Map of I.C.U. Campus and preceramic locations. Lower left box: Geological Section A-B; upper right box: tools from Locs. 1B, 4F, 6A, 15, 21, 28B.
Fig. 2. Grid scheme of excavation, Loc. 28C, showing concentrations of remains.

lap with the occurrence of the Jōmon material, but in far less density; the preceramic material tends to lie below Earliest and Early Jōmon remains on the Tachikawa terrace and below Middle and Late Jōmon remains on the Musashino plateau. Places where prehistoric remains have been recognized on the ICU campus have been numbered consecutively by discovery since systematic investigation was started in 1957. Haphazard numbering has inevitably resulted as more parts of the campus were developed.
Fig. 3. Plan and section of position of remains, with percentages indicated for all recovered items of Group A, B, C and C'.

• Point
■ Trapeze
□ Backed-blade
△ Scraper
☆ Graver
◎ Core
○ Flake
● Chip
× Pebble
The major developments affecting the archaeological work and our understanding of the site were the erection of residences that went on until 1965, the building of the Golf Course in 1964, and the construction of the Tokyo-to Highway 121 through the lower campus and the Golf Course from 1966 to 1967. In recent years Tokyo-to has been planning to widen the little river and reinforce its banks for water control at maximum flood conditions. By early 1969 these plans were entering the blueprint stage and the new course of the Nogawa was staked out. It became apparent that Loc. 28C would be destroyed, hence an excavation was needed to recover as much data as possible.

Loc. 28

Loc. 28 is a low, ligula formation beside the Nogawa, the river which flows on the Tachikawa terrace along the Kokubunji Bluff-line of the Musashino plateau. Jōmon material was found in January 1967 in three spots (28A, B, C) when the new highway was under construction. Several test pits were dug in March of the same year, at which time the Jōmon material was largely identified with the Earliest-Early periods. A few obsidian flakes which appeared to be pre-Jōmon were also recovered, so excavations were planned to determine the nature of the preceramic remains.

The location was marked off in a grid (Fig. 2). ICU Golf Course workmen transplanted several trees from the spot and excavations were conducted in May and additional test pits were dug. The yield from this excavation was a small number of pebbles and 11 obsidian tools and flakes. With good prospects for further data, the location was excavated on four occasions: from May to June, July and December in 1969, and March in 1970.

The digging proceeded through an Earliest Jōmon level, marked by predominantly shell-scraped, Kayama type pottery occurring at the base of the black humus, with many associated fire-pits, followed by two successive levels of preceramic material. The three-dimensional plotting of each item has provided the basis for statistical analyses of tool types, groupings, stratigraphic variations, local or introduced materials, efficiency in manufacturing techniques, and a chronological system relative to the presently accepted Kantō sequence. This report deals only with the preceramic levels.

The Distribution of the Stone Industries

The vertical and horizontal distribution of the artifacts permits four groupings of deposits: A, B, C and C' (Fig. 3). The artifacts of the first three groups occurred in a level composed of the soft-loam layer and the upper part of the hard-loam, whereas the artifacts of C' occurred in a lower level, the middle of the hard-loam. Groups A, B and C are collectively later deposits than C'; taken together they may be referred to as 28C Upper and 28C Lower. Tool types were combined in each grouping, but in various quantities and combinations.

Notable were trapezes with a scraper in A; points, backed-blades and gravers in B; a point and a trapeze in C; and
Fig. 4. Group A: Points (1-5), trapezes (6-12), backed-blades (13-16), scrapers (17-19), graver (20), flakes (21, 22), chip (24): 6, 16, hornfels; others obsidian.
Fig. 5. Group B: points (1–6), backed-blades (7–12), scrapers (13–19), gravers (20, 21); all obsidian.
Fig. 6. Group B: gravers (22-25), flakes (26-28), chip (30), core (31). Group C: Point (1), trapeze (2), scrapers (3, 4). 28, rhyolite; others obsidian.
Fig. 7. Group C': point (1), trapeze (2), backed-blades (3-17), gravers (18-20), scrapers (21, 22). 1, tufaceous andesite; 2, 10, 19, 21, hornfels; 3, 4, 6, 12, 16, 22 siliceous shale; 5, 7, 8, 11, shale; 15, 18, 20, glassy andesite; 17, rhyolite.
backed-blades in C'.

**The Stone Industries**

The stone implements of 28C Upper are mostly of obsidian, with the exception of some heavier examples. Those of 28C Lower are of local stone, apparently gathered from the exposed Musashino gravel bed on the opposite side of the Nogawa. Included are sandstone, gray-wacke, conglomerate, shale, clay slate, quartzite, crystalline-schist and quartz-diorite (ARI1,1967: 74). The typological relationship between the tools of the Upper and Lower levels is primarily in a tendency toward microlithic points and backed-blades. Otherwise, the vertical typological relationship is as distinct as the materials used for the tools.

**Group A** (Fig. 4) (The quantity of each type is shown at the right)

This group is characterized by a considerable number of trapezes and scrapers, among the latter being a finely shaped round specimen.

Points: all are unifacial, worked on slender flakes using the bulb end for the base; the only exception is No. 3. (5)

Trapezes: the flakes were struck off the core horizontally and the ends deliberately broken off; blunting was added to the sides, but the working edge and base were left as sharp transversal edges. Nos. 6, 7 and 9 bear distinct blunting on the side, but 8, 10, 11 and 12 are only slightly retouched on the break. Only 9 lacks the trapezoidal shape; it is technically a trapeze, but closer to a knife in shape. (7)

Backed-blades: obsidian flakes were modified to a small triangular shape (13-15); an exception to this is one large hornfels example (16). (4)

Scrapers: the edges of these tools were elaborately worked. Nos. 17 and 19 are side-scrapers; 18 is a round scraper. (3)

Graver: only one graver was found; it is a single-blow specimen with a facet on the platform side (20). (1)

Flakes: flakes are irregular in size and shape except for 21 and 22, perhaps because most of the more usable pieces had been made into tools. Many retain some natural surface. (65)

Chips: the piece illustrated (24) is a chip off of a point. (62)

Miscellaneous: pebbles are of local sandstone; one is a large hammerstone. (8)

**Group B** (Figs. 5, 6)

This group, which includes finely-shaped flakes from which tools have been made with a minimum of shape change, was disturbed by overlying Earliest Jōmon pits and fire-pits.

Points: all but one (6) are essentially unifacial. Long flakes converted to points take the standard point shape, but horizontally produced flakes leave a transversal edge, such as 5. While the transversal edge is a trait of trapezes, this group lacks actual trapezes, although 5 may have been used like a trapeze. (6)

Backed-blades: these were made from well shaped flakes, retouched on two sides near the bulb and tip except for 8, which has the platform end as its tip. Like the points, flakes were used to make blades, but the retouching techniques and ulti-
mate shape are different. No. 7 is a so-called Moro type knife.

Scrapers: flakes of arbitrary shape and size were given an edge on either side. No. 13 is a side-scraper, 14-17 are concave-scrapers, and 18 and 19 are end-scrapers.

Gravers: thick and curved flakes were transformed by adding a graver facet on one end. No. 21 is an angle-scraper with scraper edge on the opposite end. No. 20 is a beak-shaped burin, probably used for carving narrow grooves.

Flakes: flakes in this group are all well shaped. Nos. 26 and 27 fit together. No. 29 seems to be an unfinished point. No. 28, of rhyolite, is the largest flake from the site. It is brittle and perhaps slightly nicked by use; retouches appear on the edges near the ends.

Chips: many of these are usually found near the points.

Group C (Fig. 6/1-4)

Rather few artifacts constitute this group and the typological variation is more restricted than in the other groups, perhaps due to the limited area that was dug in that part of the excavation.

Point: there is one example, which is missing both ends. The original shape was probably similar to the illustrated one of Group B, No. 4.

Trapeze: a square flake was worked on the platform and the adjacent working edge, leaving a main flake surface as the upper surface of the tool.

Scrapers: one side-scraper was worked only along the edge (3); one is a concave-scraper (4).

Flakes: there is a rather small quantity of flakes.

Chips: the chips are also rather few in number.

Group C' (Fig. 7)

Backed-blades are the chief type and show microlithic tendencies. They were produced by the extensive reshaping of flakes. No tools of obsidian were found; only local stones were used, of varieties available in the Musashino gravel bed on the north side of the river.

Point: one unifacial tool was retouched to produce a sharp edge on its tip.

Trapeze: one thick, broad flake was deliberately broken into a trapezoidal shape.

Backed-blades: these may be subtyped according to the extensive retouching on one side: a) two sides blunt with a sharp edge on the third side (3-7); b) lunate shape with blunting on one side (8-10); c) extensive blunting, with an edge that appears to be deliberately broken off (11-14); d) deeply retouched near the bulb (15-17).

Graver: a beak-shaped burin may be produced on the slender tip of a flake (18). Graver facets may appear at one end (19, 20). No. 19 may be called a bec de flute.

Scraper: these are proportionally fewer in number. There may be slight working at one end on end-scrapers (21). No. 22 is a side scraper.

Miscellaneous: many well shaped flakes usable as blades were recovered. The cores have platforms at either end; natural surfaces remain on all but one.
Relationship of Groups A, B, C and C’

Arguments that may be advanced in favor of three successive occupations of the spot for deposits A, B, and C are the following: (a) each group has a well balanced set of tools; (b) no two flakes from different groups could be shown to fit together; and (c) the tools may be divided into several chronological types according to the current understanding of preceramic developments.

Arguments that may be advanced in favor of contemporaneous deposits are the following: (a) the artifacts occurred essentially in one level (that is, the level consisting of the lower soft-loam and upper-hard loam); (b) each group was spatially distinct; in fact, they were clustered in much the same fashion as the contents of pit-dwellings, as though each may have been a defined living or working area; (c) the main tools are of obsidian of consistent quality that has been proved to have been brought from one point of origin; (d) the points in each group are similar in shape and in method of retouching; and (e) if the artifacts from Groups A, B, and C are taken collectively, they give the impression of constituting a valid assemblage.

On the whole, the arguments are more heavily weighted toward the second choice, leading one to believe that contemporaneous deposit was most likely.

Obsidian

Fission track examination of the obsidian (SUZUKI, 1970) showed the material to have come from Mt. Hakone, a distance of about 70 km from Mitaka. The total weight of the obsidian collected from the preceramic deposits is 370.69 g; it has a volume of only 127 cc. This can be said to be a very small amount for a material so important to its users, but to it might be added the small unknown factor of the unexcavated. The features of the tools point up the limitations on the supply of obsidian and the methods of using it most economically: (a) the tools comprise 34% of the total weight of the obsidian (Fig. 8); (b) flaking was done without resort to “prepared surfaces”, presumably also as an economy measure; (c) many of the tools, especially scrapers and gravers, retain some natural surface (Fig. 9); (d) few flakes for which use could be made were left untouched; the ones which do remain could have been converted to useful tools with very little effort; (e) local stones were used for the larger and heavier tools.

These characteristics may be contrasted with those of the industries of the C’ group that lie below. In the latter case, (a) the tools are generally small in size, but the flakes are proportionally large; (b) few tools retain any of the original, natural surface (Fig. 9); and (c) core-rejuvenation flakes are present.

It is often believed that the presence of extensive natural surfaces on stone tools is the mark of a primitive stage of production. This is not the case at Loc. 28C; rather, it is directly related to the availability of the material and the ef-
ficiency of its use. Two strata, distinct in materials and tool types, furnish the comparative data for the careful measures taken to get the maximum results from the chunks and pebbles of obsidian that were brought in.

The chief tools have been plotted in Fig. 10 according to length, width and weight (granting the affect of thickness on weight). The points achieve a high degree of consistency, with only a little less consistency shown by the backed-blades and trapezes. Backed-blades, incidentally, vary greatly in length (from 1.4 to 3.6 cm), but somewhat less so in width (from 1 to 2 cm). On the other hand, gravers and scrapers lacks this consistency, especially in weight. From this fact it may be assumed that greater variability would probably have impaired the function of the points, backed-blades and trapezes, but not the gravers and scrapers. Apparently the latter were less restricted in shape as it related to function. It may be that the points, backed-blades and trapezes served primarily as projectile points, such as arrowheads, spearheads and barbs, in which balance and precision were important, while the gravers and scrapers served primarily for handwork in which dexterity compensated for their inconsistencies.

The use of obsidian flakes for tools, where flakes were mostly discarded in other stone, is further reflection of the thrifty use of this material. A high percentage of gravers and scrapers in the upper level (especially in groups A and B) retain some natural surfaces (Fig. 9). It may be assumed that well shaped and similar sized flakes were selected for the points and certain other tools, while heavy flakes of irregular size and shape removed from the surfaces of the cores were used for scrapers and gravers. When a geologically rich supply was close at hand, only good flakes and of any suitable stone

Fig. 8. Diagram showing percentages of use of obsidian; artifacts make up 34% of the total.

Fig. 9. Graph showing percentages of retention of natural surfaces on artifacts, taken type by type.
were used; they were then fully modified to the desired shape.

**Loc. 28C and the Preceramic Chronology of the Kantō**

In a wider context, the two artifact-bearing levels of different tool types and of fundamentally different materials, need to be compared with the existing preceramic sequence of the Kantō Plain. Some of the backed-blades, such as Nos. 7, 8, 11 and 12 shown in Fig. 5, are identical to what is called the “Moro type knife” in the Moro site (Moro-chō, Itabashi-ku, Tokyo) (SUGIHARA, YOSHIDA and SERIZAWA, 1959). Inferences are made for an early stage for these knives from a single-stratum site on the grounds that (a) the flaking was done without a prepared platform, a technique that should theoretically be more primitive and therefore earlier than a stage when prepared platforms were a part of the technique (SERIZAWA, 1962: 95); (b) the tools were produced by a minimum of modification of the original flake (SERIZAWA, 1962: 95); and (c) the Moro type knife does not appear together with the *kiridashi-gata* knife tool. (The kiridashi-shape tool is more or less guillotine-shaped, with three unifacially retouched sides and the fourth an angled cutting edge; it may be a kind of trapeze).

The ICU. Loc. 28C data, however, may be taken to indicate that the lack of a prepared platform is due more to the availability and efficient use of materials and is not necessarily a primitive stage in the development. Prepared platforms appear on tools in 28C Lower, but not in Upper. Obsidian was used at Moro, where the flakes are also inconsistent in form. 50% of the Moro knives have some natural surfaces; precisely the same percentage occurs at ICU. These similarities might lead one to suppose that Moro is contemporaneous with Loc. 28C Upper, except for the fact that the Moro assemblage lacks both points and trapezes. Other sites in the general area, however, such as Tsukimino I, IIIA Middle (Yamato...
city, Kanagawa prefecture) (SUGIHARA and TOZAWA, 1969) and Nishinodai Loc. A (Koganei city, Tokyo-to) (YOSHIDA, 1957), do have points and more or less trapezoidal backed-blades, as well as Moro type knives. The Moro aberration might possibly be due in part to the relatively small area that was dug and the rather early stage in which it was done in the history of preceramic excavations. In any event, to judge by the reports of Tsukimino, Nishinodai and Moro, the artifact-bearing layers are geologically similar to ICU. Loc. 28C.

One other suggestion might be made for Moro. Carbonized material found among pebbles has been identified as chestnuts (*Castanea crenata* Sieb et Zucc) and a kind of oak (*Cyclobalanopsis* sp) (SUGIHARA, YOSHIDA and SERIZAWA, 1959: 95). Their presence suggests that the environmental conditions at the time of the Moro deposits were not greatly different from the Jōmon period, or even from

<table>
<thead>
<tr>
<th>Pottery/tools</th>
<th>Phase</th>
<th>I.C.U.</th>
<th>Kantō Plain types and accepted sequence</th>
<th>Adjusted sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell-scraped</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>String-impressed</td>
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<td>Nail-impressed</td>
<td></td>
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<td>Linear relief</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adze</td>
<td>V</td>
<td>Loc. 21</td>
<td>Ichibazaka Upper</td>
<td>Ichibazaka Upper</td>
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<tr>
<td>Micro-blade</td>
<td>IV</td>
<td>Loc. 28B</td>
<td>Nakamura-minami</td>
<td>Nakamura-minami</td>
</tr>
<tr>
<td><strong>Prehistoric</strong></td>
<td>II</td>
<td>Loc. 28C Upper</td>
<td>Iwajuku II, Tonogayato, Tsukimino II, Ichibazaka</td>
<td></td>
</tr>
<tr>
<td>Backed-blade</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Loc. 1B</td>
<td>Nishinodai A, Sunagawa, Tsukimino I, Moro</td>
<td>Nishinodai</td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>(Loc. 34)</td>
<td>Isoyama, Takei I, Iwajuku I</td>
<td>Isoyama, Takei I, Iwajuku I</td>
</tr>
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</table>
today. This might be used as argument to update Moro as far as possible.

The backed-blades from 28C Lower are quite similar to examples found at Ichibazaka (Katayama, Niiza-machi, Kita-adachi county, Saitama prefecture) (Takizawa, 1964). These tools, which are flakes strongly modified to backed-blades, used to be regarded as much more advanced than the rather primitive type of Moro. Such ideas now appear to be unreliably founded, and should be viewed as relative to the proximity of the materials instead of to a position in a uniform evolution from primitive to advanced techniques. The preference for and supply of materials was the key to development in this area.

The Tsukimino II, IVA Lower and Sunagawa (Tokorozawa city, Saitama prefecture) (Tozawa, 1968) sites have yielded comparable backed-blades. Ichibazaka is customarily assigned in the chronology to a stage later than Moro, but from the data gathered at ICU there is a good possibility that these stages should be reversed. A chart has been drawn up to suggest these adjustments in the Kantō preceramic sequence (Table 1).

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(Received April 10, 1970)
国際基督教大学構内 Loc. 28C の先土器文化

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国際基督教大学構内 Loc. 28C は武蔵野台地の西縁、多摩川に接した立川段丘上にあり、国分寺塚線沿って流れる野川に臨む小さな台状台地である（Fig. 1）。ここで織物早期土器を発見後、二枚にわたる先土器文化層が発見された。これは Loc. 28C'の四つの石器群からなっている。

これらの石器群は対布を異なるだけでなく、各々の組成に特徴を持っている。即ち、尖頭形、台形石器、ナイフ形石器、揺刀、剣、形器など共通の石器を保有しながらも、各々の tool-kit 偏在が、認められる（Fig. 4〜7）。

C' は C の下層に包含層を持ち明らかに古い石器群であることが分かっており、上層の A、B、C 群は同じ層中にあ りその相互関係については二様の解釈ができる。それは(A)時代的に異なる、(B)同時代のものであるという。(A)によっ ては①各群の間に関制類の接着関係が認められること②各群の石器組成にバランスがとられて独立的 であること③石器自体に現在の編年尺度をもって、時代を考慮した分類が認められ、(B)については④素材が黒煌石で共通していること、⑤各群が重複することなく同一層位の中に順序よく台地縦辺部にならんで いること、⑥各々の tool-kit の偏在を一単位集団の特色とみてそれを複合したより大きな集団における石器 組成としてとらえうることが挙げられるが、現在までの操作では後者の可能性が強い。

上層だけに認められる黒煌石はフィッシャン・トラック検査の結果、箱根より持ち込まれたものであることが分った。出土した黒煌石の総重量は 370.69g で容積上すると約 127cc にすぎず、その供給量が非常に限られ たものであったことが分る。そのため、①重量にとると石器が 34%の高率を占める、②核打面を調査することなく、色々な方向から片製をとる。③良好な器形類は殆どが石器に転用されてしまったから、使用不可可能なものだけが残っている。④石器に自然面を残すものが多 い（Fig. 9）、⑤石器を削片をあまり変形していな いで、その特徴がこの自己器文化に現れている。そして①〜⑤の条件は下層の、供給が豊富なローカルな石を使用している C' 群のものが全く逆なものとなっている。

Fig. 10 のグラフは出土した石器について、長さ、巾、重さの関係を示したものである。石器の中では尖頭 形がこの三者間にも最も強い相関関係が認められ、ナイフ形石器、台形石器も割合にやや相関を示す（ナイフ形石器は長さに比べ巾の制限が強いらしい）。 形器及び鎬、剣が形の上で著しく相関のバランスのすぐれた ものがある。つまり尖頭形、ナイフ形石器、台形石器では定形化の要求が強く、その使用が全体的であるのに 比べ形器、剣では定形化があまり要求されない部分的な利用がその目的であったいため、このこと は黒煌石の石器の自然面を残しているもの比率によく反映されている。

この遺跡で発見された石器群を周辺遺迹のそれと比べると上層が茂呂、月見野Ⅰ・ⅢA、西の合Ⅱなど のもののに下層が市場坂、月見野Ⅱ・ⅣA のものに類似している。ところがこれは現在一般に考えられている 
編年序列と逆転していることに気づく。上層のナイフ形石器中には茂呂遺跡出土の茂呂ナイフ形石器と呼ば れるに至る脇に類似しているものが、茂呂型ナイフ形石器は①削 Seats が非調整石核で行われ、調整打面を持つ 本格的な石刀技法より技術的に幼稚。②素材を変形しない石器の製作法も元来的。③切出石器を伴わない などの理由によって、ナイフ形石器文化の下代の比較的古い段階に位置づけられていた。しかし①〜③について は既に黒煌石の項で述べたように、原始の様相と言うよりむしろ素材の供給量に要因するもので、規制され た素材をより効果的に用いる進んだ技術ではなくかと考えられる。④については台型石器の箱型理解と相ま って層位的にも言えるとされる武井 I、礎山にすでに存在しているので問題はない。茂呂遺跡は位置、地層、石 器の素材、片製の形態、ナイフ形石器に残る自然面など全てにわたって我々の遺跡の上層文化と近似する点が 多く、その組成の問題も含めて茂呂石器群の編年位置づけの再検討を指摘するものである。従来細石器化の 進んだ小型のナイフ形石器群を比較的新しい段階のものとして把握していたが、ここより古い段階にもその 存在の位置づけが確認されたわけである。