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ORIGINAL PAPER

Lithic artifacts and industry of the Xiaoyushu Site, Heilongjiang Province, China

Qiankun Quan[1] · Pengxu Pan[1] · He Tian[2] · Shuguang Bao[3]

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Abstract
The Xiaoyushu site (47°52'17.5 N, 124°28'15.9 E, 171 masl) is located on the left bank of the Nengjiang River. It was excavated jointly by the Heilongjiang Provincial Archaeology and Cultural Relics Institute and Heilongjiang University in 2011, with an excavation area of more than 2,300 m^2. A total of 352 lithic artifacts were excavated, including cores ($n=17$, 5%), flakes ($n=71$, 20%), tools ($n=55$, 16%), and debitage ($n=209$, 59%). Noteworthy among the core debitage are atypical microblade cores exhibiting indeterminate production of microblades. This site lacks standard wedge-shaped, boat-shaped, or prismatic microblade cores, and microblade or microblade tools are absent, with only microblade-like flakes present. The toolkit includes various types of scrapers ($n=38$), notches ($n=11$), and borers ($n=5$). The raw material of this site is mainly siliceous rock and agate. The site is dated ca. 15 − 10 ka uncal BP by comparative geostratigraphy, ranging from the Bølling-Allerød and across the Younger Dryas. The relatively limited presence of systematic microblade production, the lack of complete tools and high percentage of debitage within the site suggests its potential role as a short-term occupation camp or lithic manufacturing site utilized by ancient humans.

Keywords Xiaoyushu site · Atypical microblade technique · Upper Paleolithic

1 Introduction

The Xiaoyushu site (47°52'17.5 N, 124°28'15.9 E, 171 m above sea level) is situated northeast of Xiaoyushu Village in Fuyu County, Qiqihar City, Heilongjiang Province, China, which is on the Songnen 松嫩 Plain on the left bank of the Nenjiang 嫩江 River (Fig. 1). In late June and early July 2017, the Heilongjiang Provincial Institute of Cultural Relics and Archaeology and Heilongjiang University collaborated to conduct excavations in support of the construction of the Nierji 尼尔基 Water Conservancy Project in Nenjiang River.

✉ Qiankun Quan
quanqiankun@jlu.edu.cn

1 School of Archaeology, Jilin University, Changchun, China

2 Heilongjiang Provincial Archaeology and Cultural Relics Institute, Harbin, China

3 School of History Culture & Tourism, Heilongjiang University, Harbin, China

2 Stratigraphy and chronology

The Xiaoyushu site has arable phaeozem soil on its surface, and an irrigation canal cuts through its center. The excavation area is 2,300m^2 (Fig. 2: a, b). The lithic artifacts were mainly recovered from Layer 3, a black, sandy soil layer. The maximum thickness of the artifact-bearing layers is 100 cm. The site stratigraphy can be described as follows (Fig. 2: c):

Layer 1: Arable phaeozem soil, with gray-black sand; thickness is about 10 cm.

Layer 2: Yellow sandy soil, with maximum thickness of 10 cm.

Layer 3: Black sand, about 10 cm thick; the lithic artifacts are mostly from this layer.

Layer 4: Black-brown fine sand, with maximum thickness of about 10 cm.

Layer 5: Black sandy clay: fluvio-lacustrine sediments with no lithic artifacts.

The excavation ended after reaching a depth of 10–20 cm depth within Layer 5 to assure no lithic artifacts were left in the deposits.

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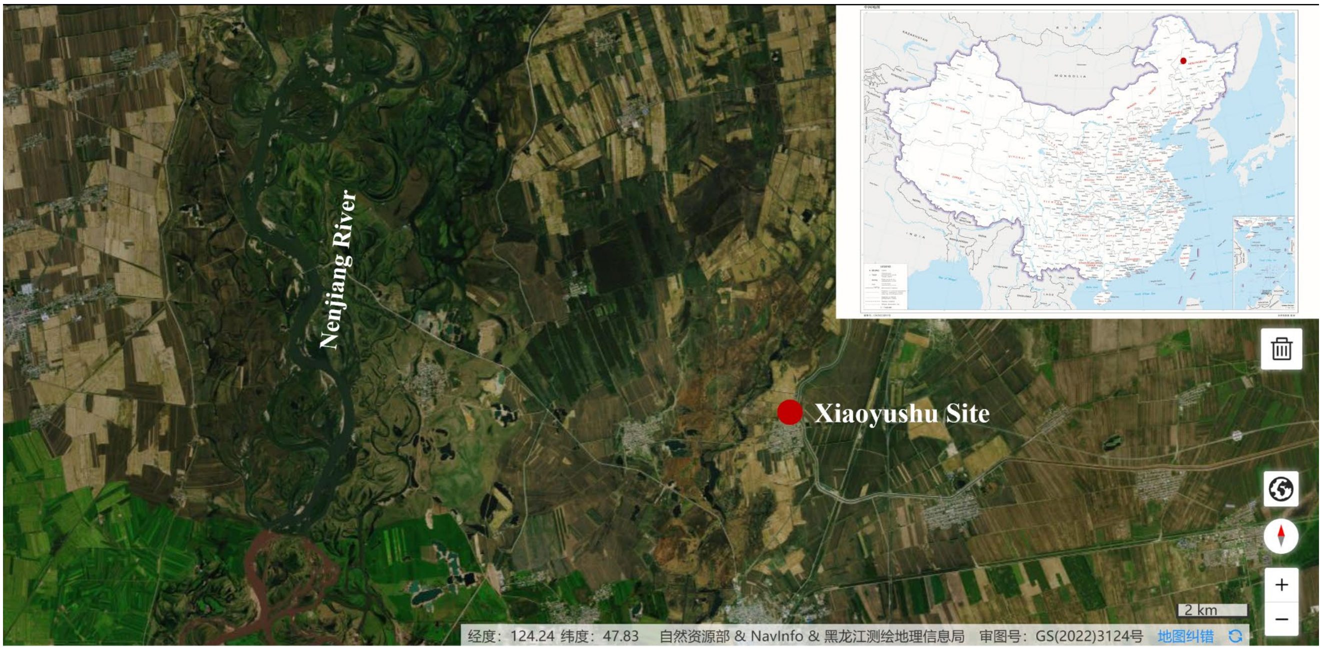

Fig. 1 Geographic location of the Xiaoyushu site. Political map and satellite imagery from https://vgimap.tianditu.gov.cn/

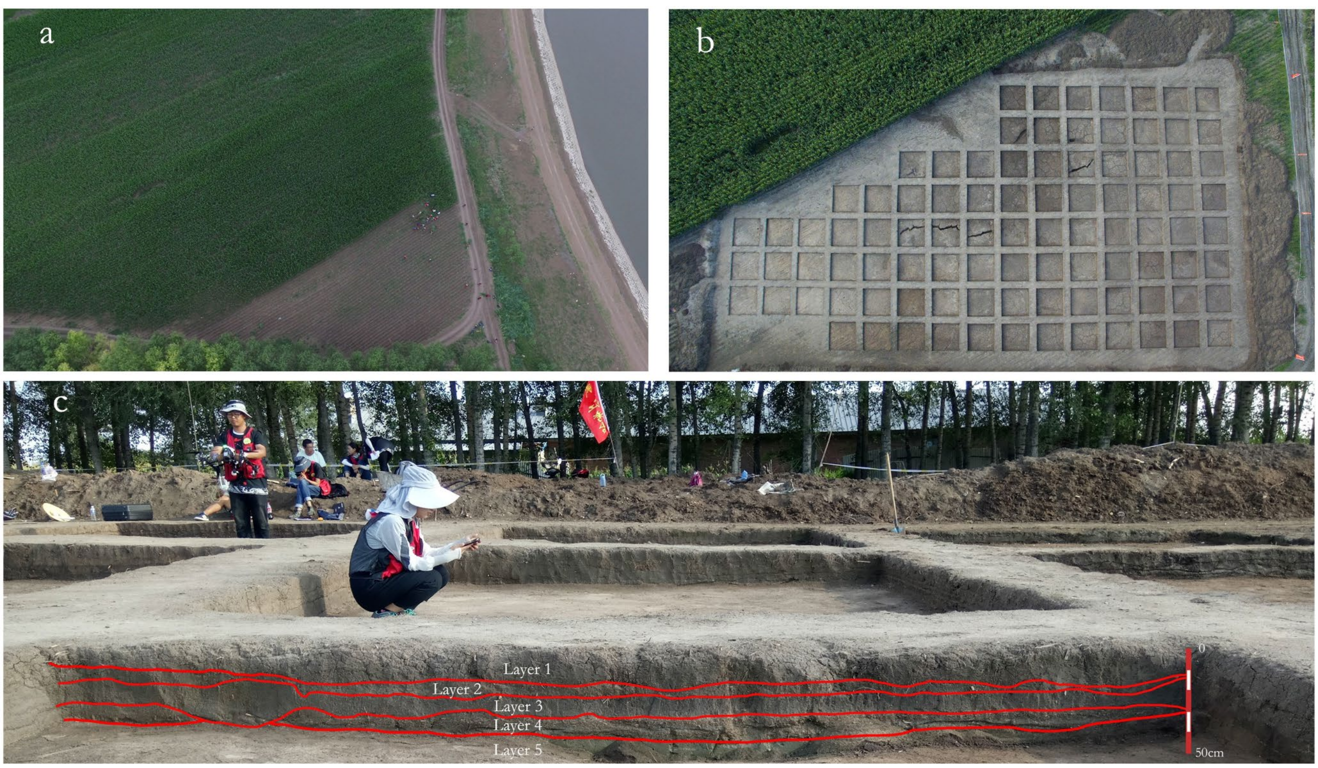

Fig. 2 Aerial photographs before (**a**) and after (**b**) the excavation and of the stratigraphy (**c**) of the Xiaoyushu site

Because of the site's long-term farming disturbance of its thin stratigraphy, it is difficult to obtain reliable samples for determination of absolute chronology. Instead, we analyzed the stratigraphy of the site and compared it to the Quaternary stratigraphy of the Nenjiang River basin. As a result, the chronology of Layer 3 and Layer 2 appears to be the transition between the Bølling-Allerød period and the Younger Dryas, about 15 – 10 uncal ka BP (Li 2021).

3 Lithic artifacts in the Xiaoyushu site

The excavated area of the Xiaoyushu site was in the southeast area the site. Numerous lithic artifacts were exposed on the surface, and these were collected. During the excavations, locations of all lithic artifacts and animal fossils were recorded in three-dimensions. Based on typological similarity, we combine the lithic artifacts excavated from Layer 1 to Layer 4, and the surface collected artifacts, into a single lithic assemblage (Fig. 3). There are a total of 352 lithic artifacts from the site, including 17 cores (5%), 71 flakes (20%), 55 tools (16%), and 209 manuports, chunks, and debitage (59%). The majority of the lithic artifacts' raw material was siliceous rock ($n=300$, 85%), followed by agate ($n=41$, 12%), quartz sandstone ($n=7$, 2%), and a small amount of other raw materials (Table 1).

3.1 Cores ($n=17$)

We distinguish two kinds of cores at the site, flake cores ($n=11$) and microblade cores ($n=6$). The cores' dimensions range 16.17–40.26 mm in length, with a mean value of 28.80 mm; 11.05–55.34 mm in width, with a mean value of 28.78 mm; 6.43–35.98 mm in thickness, with a mean value of 21.37 mm; and 2–49.1 g in weight, with a mean value of 21.73 g. The average length of the stone cores is slightly greater than the width, with a length-width ratio between 2:1 and 1:2. Most of the platforms of the flake cores are cortical, and the platforms of the microblade cores are mainly plain or facetted platforms.

3.1.1 Flake cores ($n=11$)

Flake cores including single platform cores ($n=2$), double platform cores ($n=3$), and multiple platform cores ($n=6$). The flake production is not systematic, and the knapping strategies are diverse.

Specimen T0303③: 1. Single platform flake core. The raw material is siliceous rock. Measures 37.45×33.02×30.72 mm and weighs 49.1 g. The platform is prepared, with attempted knapping after centripetal preparation of the platform, with a flaking angle range of 75 to 90 degrees, and the mean value is 83 degrees(Fig. 4: 1).

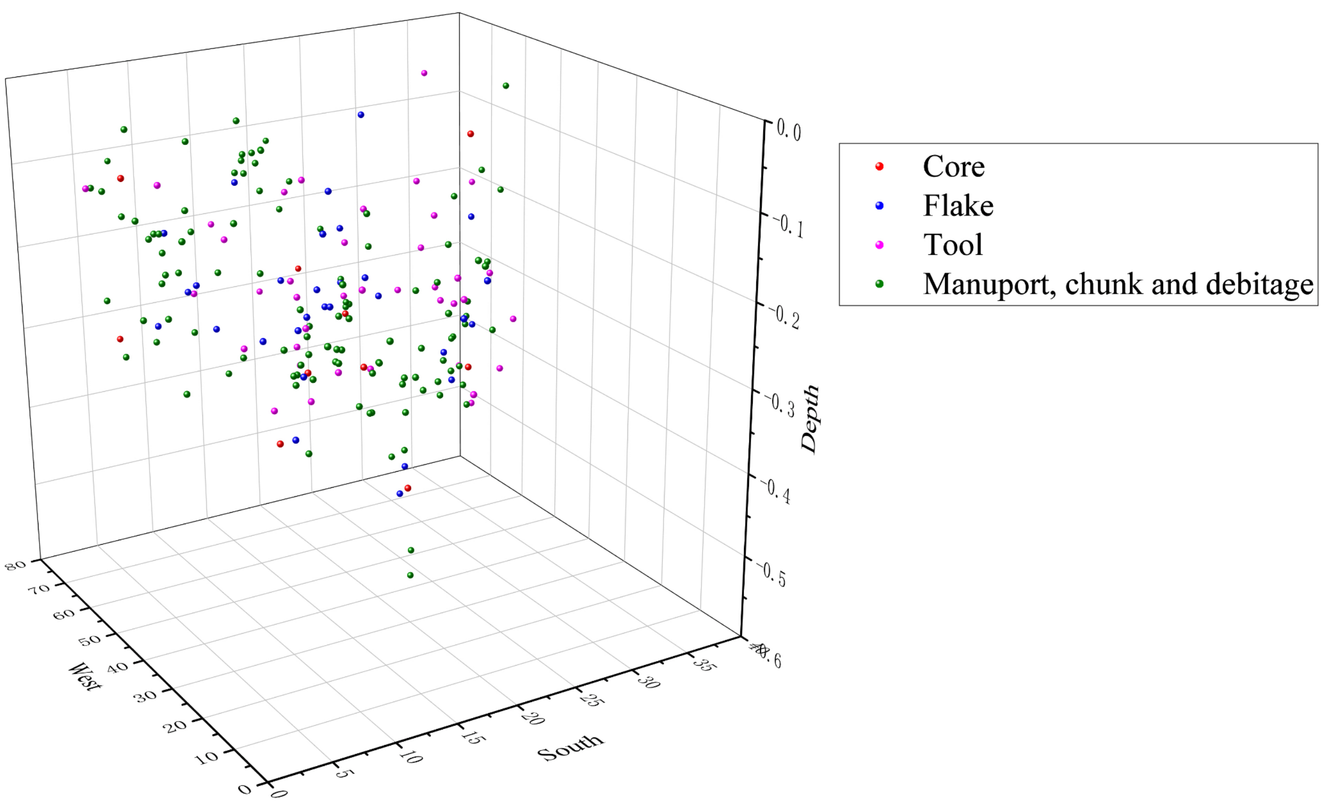

Fig. 3 Distribution of lithic artifacts in the Xiaoyushu site

Table 1 Xiaoyushu site lithic counts and raw materials

Type	Quantity			Material			
	Excavated	Collected	Total	Siliceous rock	Agate	Quartz sandstone	Others
Cores	10	7	17	13	4	-	-
Flake core	4	7	11	8	3	-	-
Microblade core	6	-	6	5	1	-	-
Flakes	**36**	**35**	**71**	**63**	**6**	**2**	**-**
Complete flake	6	13	19	18	-	1	-
Fragment	26	19	45	40	5	-	-
Microblade-like flake	4	3	7	5	1	1	-
Tools	**42**	**13**	**55**	**48**	**4**	**3**	**-**
Stone hammer	-	1	1	-	1	-	-
Scraper	31	7	38	34	3	1	-
Single edge side scraper	9	4	13	12	1	-	-
Multiple edge side scraper	7	1	8	6	1	1	-
Oblique side scraper	4	-	4	4	-	-	-
Scraper with spur	5	-	5	4	1	-	-
End edge scraper	4	2	6	6	-	-	-
Side-end edge scraper	2	-	2	2	-	-	-
Notch	6	5	11	11	-	-	-
Borer	5	-	5	3	-	2	-
Manuport	3	1	4	1	1	-	2
Chunk	105	68	173	149	20	2	2
Debitage	18	14	32	26	6	-	-
Total	214	138	352	300	41	7	4
%	61	59	100	85	12	2	1

Specimen T0412②: 1. Double platform flake core, raw material is siliceous rock. Measures 26.24 × 33.8 × 32.03 mm, 26.7 g in weight. Both cortical and facetted platforms are present on this core. Flaking angles range from 65 to 70 degrees, with a mean value of 67 degrees (Fig. 4: 2).

3.1.2 Microblade cores (*n* = 6)

Microblade cores include single platform microblade cores (*n* = 3) and double platform microblade cores (*n* = 3). Some microblade cores are not typical wedge-shaped, boat-shaped, or prismatic microblade cores. The Xiaoyushu cores lack preparation of crest and platform, and most of original striking platforms are cortical or plain and the first removal is knapped from a natural crest.

Specimen T0403③: 1. Double platform microblade core with raw material of siliceous rock. Measures 28.25 × 39.57 × 28.49 mm, 29.7 g in weight. Both cortical and facetted platforms are present on this core. The flaking angle range is 65 to 80 degrees, with a mean value of 72 degrees (Fig. 4: 3).

Specimen T0109③: 2. Double platform microblade core, raw material is siliceous rock. Measures 23.24 × 25.83 × 30.85 mm, 15.7 g in weight. The flaking angles range from 65 to 71 degrees, with a mean value of 66.5 degrees (Fig. 4: 4).

Specimen T0112 ①: 1. Single platform microblade core, raw material is agate, on a pebble blank. Measures 27.33 × 20.08 × 35.98 mm, 18.8 g in weight. The platform is faceted, and the flaking angle is 80 degrees (Fig. 4: 5).

Specimen T0204④: 10. Double platform microblade core on siliceous rock; its blank is a fragment. Measures 18.12 × 13.91 × 6.43 mm, 2.1 g in weight. The platform is faceted, using the natural lateral edges of the flake as a crest to make microblades using pressure flaking. The flaking angle is 135 to 90 degrees with a mean value of 113 degrees (Fig. 4: 6).

3.2 Flakes (*n* = 71)

The flakes' dimensions are 5.46–45.83 mm for length, with a mean value of 20.41 mm; 7.71–32.34 mm in width, with a mean value of 18.38 mm; 1.61–23.56 mm in thickness, with a mean value of 7.72 mm; and 0.08–16 g in weight, with a mean value of 2.01 g. Overall, some of the flake length-width ratio values are greater than 2:1, but a significant number of the flakes' length-width ratio values are less than 1:1, which may be related to the high percentage of fragments in the assemblage. The width-thickness ratio of the flakes is about 4:1. The striking platforms are mainly cortical and facetted. The average value of the flaking angle is 105 degrees. Although there are some primary flakes, the

Fig. 4 Cores and flakes from the Xiaoyushu site. 1–2. flake cores; 3–6. microblade cores; 7–9. complete flakes; 10–14. fragments; 15–16. microblade-like flakes

vast majority of them have negatives on the dorsal face, and 42% of them have no cortex on the dorsal face.

3.2.1 Complete flakes (*n* = 19)

The production of complete flakes is diverse. Most of them use local siliceous rock, the striking platform is mainly cortical, and the removals on the dorsal face verify the rejuvenation of the debitage surface in flake production. Some complete flakes were maybe used directly as tools.

Specimen T0209④: 6. Complete flake, raw material is siliceous rock. Measures 21.76 × 24.9 × 7.83 mm, 3.3 g in weight. The platform is faceted, measuring 9.3 × 4.28 mm. Flaking angle is 95 degrees. (Fig. 4: 7).

Specimen T0305①: 2. Complete flake, raw material is siliceous rock. Measures 45.83 × 15.91 × 19.51 mm, 11.4 g in weight. The platform is facetted, measuring 11.97 × 8.69 mm. Flaking angle is 80 degrees. The flake is probably a crested flake made by percussion with a hard hammer (Fig. 4: 8).

Specimen T0401①: 3. Complete flake, raw material is quartz sandstone. Measures 29.07 × 24.18 × 21.38 mm, 16 g in weight. The platform is facetted, measuring 10.66 × 7.30 mm. Flaking angle is 150 degrees. This flake may be a rejuvenation flake from hard hammer knapping, with removals from core shaping on the side and distal end of the flake (Fig. 4: 9).

3.2.2 Fragments (*n* = 45)

The fragments further demonstrate the diversity of flake production at the site, with the presence of primary flaking, rejuvenation of the debitage surface, and the is one case that suggest microblade pressure flaking (specimen T0204④: 10). The presence of these fragments, showing the well-preserved nature of the lithic assemblage also indicates the site's taphonomic environment as a primary deposition with in situ artifacts.

Specimen C: 70. Middle fragment, raw material is siliceous rock. Measures 24.36 × 18.5 × 23.56 mm, 10.1 g in weight. This fragment has suspected bidirectional microblade scars on the upper face, which could perhaps be evidence for the existence of prismatic microblade cores (Fig. 4: 10).

Specimen C: 6. Distal fragment, raw material is siliceous rock. Measures 37.04×31.3×17.11 mm, 16.02 g in weight. This fragment has centripetal scars on the upper face and seems to be a core rejuvenation flake (Fig. 4: 11).

Specimen C: 21. Distal fragment, raw material is siliceous rock. Measures 36.04×16.02×10.94 mm, 7.21 g in weight. It seems to be knapped from edge of a thin, flat pebble (Fig. 4: 12).

Specimen T0109②: 2. Proximal fragment, raw material is siliceous rock. Measures 14.97×16.13×3.99 mm, 0.7 g in weight. The platform is facetted platform, measuring 2.52×1.79 mm. Flaking angle is 110 degrees (Fig. 4: 13).

Specimen T0204④: 8. Distal fragment, raw material is siliceous rock. Measures 12.74×21.44×5.26 mm, 1.1 g in weight. The flake has waves of ripples on the left edge and may have been buried directly into the sediments without use or wear (Fig. 4: 14).

3.2.3 Microblade-like flakes (*n* = 7)

For some atypical microblades, we define them as "microblade-like flakes" to distinguish them from typical microblades. The appearance of these flakes may be due to the presence of atypical microblade cores, which gives these flakes atypical characteristics, such as non-parallel edges on both sides and still having cortex on the dorsal face.

Specimen C: 305. Proximal fragment, raw material is agate. Measures 17.45×9.68×4.38 mm, 0.69 g in weight. The platform is a cortical platform measuring 7.52×5.05 mm. The flaking angle is 93 degrees (Fig. 4: 15).

Specimen T0407①: 2. Distal fragment, raw material is siliceous rock. Measures 12.35×9.73×2.35 mm, 0.2 g in weight. There may be traces of use-wear on the right side of this fragment (Fig. 4: 16).

3.3 Tools (*n* = 55)

The main kind of tools are scrapers, of which there are various types. The blanks are mainly flakes. The retouch of the edges is mostly stepped, and there is pressure retouch on some specimens. There are also notches and borers in the assemblage. The retouch of the borers is expedient. There is a lack of complete tools, and many tools are broken. There are specimens of stone cores transformed into scrapers. The tools' dimensions range 10.05–54.22 mm in length (mean value of 24.82 mm), 9.27–42.41 mm in width (mean value of 21.59 mm), 3.99–37.75 mm in thickness (mean value of 10.78 mm), and 0.28–28.2 g in weight (mean value of 7.29 g).

3.3.1 Stone hammer (*n* = 1)

Specimen C: 31. Single ended stone hammer, raw material is agate. Measures 54.22×42.41×20.66 mm, 53.99 g in weight (Fig. 5: 1).

3.3.2 Scrapers (*n* = 38)

There are 6 kinds of scrapers in the site: single-edge side scraper (*n* = 13), multiple-edge side scraper (*n* = 8), oblique side scraper (*n* = 4), scraper with spur (*n* = 5), end-edge

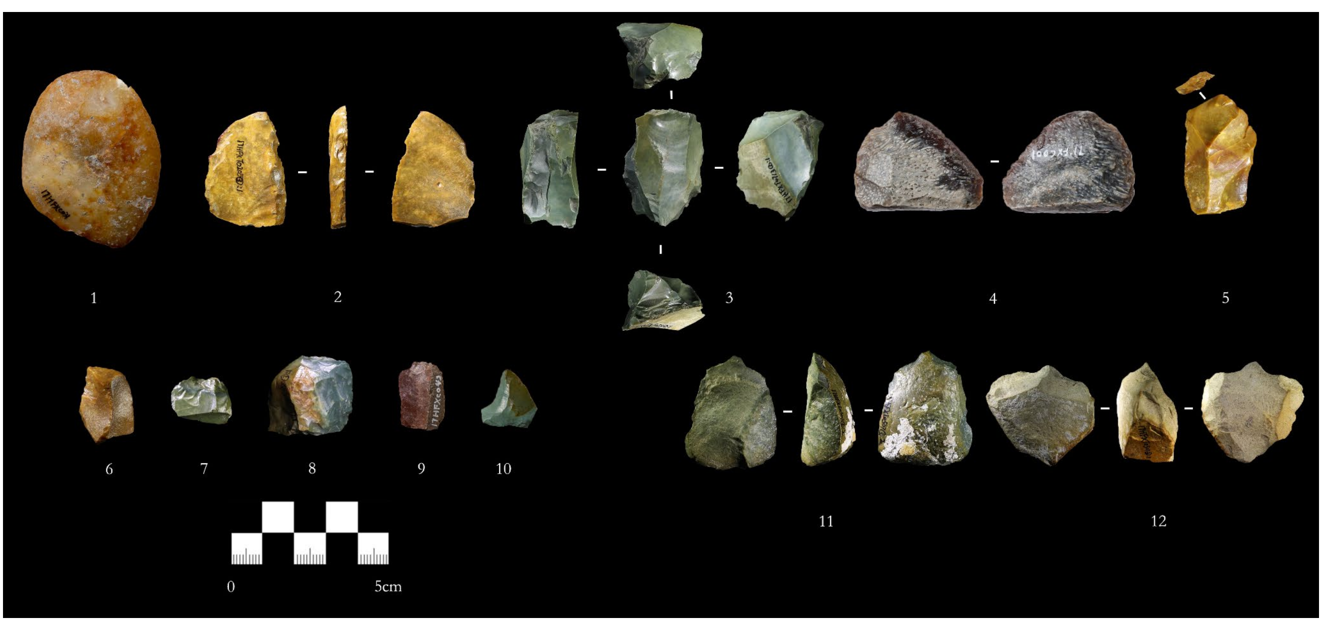

Fig. 5 Tools from the Xiaoyushu site. 1. hammerstone; 2–4. multiple-edge side scraper; 5. oblique side scraper; 6. scraper with spur; 7. end-edge scraper; 8. side-end edge scraper; 9–10. notch; 11–12. borer

scraper ($n=6$), and side-end edge scraper ($n=2$). The average edge angle of the scrapers is 56.8 degrees. There are more retouched scrapers than those with only use-wear traces, more direct retouching than inverse retouching, and some edges with bifacial retouching.

Specimen T0205③: 1. Multiple-edge scraper, raw material is quartz sandstone. Measures 36.12×35.43×5.36 mm, 6.7 g in weight. Number of edges is two, 26.99 mm and 33.96 mm in length, edge angles are 40 and 60 degrees. It is a "primary flake" with the edge retouched into a scraper and then the break in the middle (Fig. 5: 2).

Specimen T0713 ①: 1. Multiple-edge scraper, raw material is siliceous rock. Measures 35.48×24.76×15.66 mm, 18.1 g in weight. Number of edges is two, 17.96 mm and 18.19 mm in length, edge angles are 70 and 80 degrees. We suspected it was formed by retouching an exhausted bipolar flake core. (Fig. 5: 3).

Specimen C: 1. Multiple-edge scraper, raw material is siliceous rock. Measures 32.17×41.01×10.82 mm, 14.53 g in weight. Number of edges is two, 31.93 mm and 22.44 mm in length; edge angles are 45 and 65 degrees (Fig. 5: 4).

Specimen T0204 ②: 5. Oblique edge scraper, raw material is siliceous rock. Measures 36.12×21.77×15.71 mm, 10.8 g in weight. Number of edges is one, 14.79 mm in length, edge angle is 50 degrees. This specimen is suspected to be a flake core that has reached the exhausted stage of knapping and was then retouched to have an oblique edge for use (Fig. 5: 5).

Specimen T0206③: 1. Scraper with spur, raw material is siliceous rock. Measures 23.68×17.20×8.12 mm, 3.4 g in weight. Number of edges is one, 8.1 mm in length; edge angle is 60 degrees. It has a burin-like scar on the left side of the proximal end, probably using the tip and edge formed by this scar for use (Fig. 5: 6).

Specimen T0209④: 3. End-edge scraper, raw material is siliceous rock. Measures 14.53×17.74×6.69 mm, 1.6 g in weight. Number of edges is one, 13.22 mm in length, edge angle is 50 degrees. The blank is a proximal fragment, with the proximal end retouched and no platform visible (Fig. 5: 7).

Specimen T0310③: 1. Side-end edge scraper, raw material is siliceous rock. Measures 22.32×26.21×15.65 mm, 10.7 g in weight. Number of edges is two, 13.82 mm and 20.59 mm in length, edge angles are 65 and 55 degrees. It is made on a pebble blank and was broken after retouching and use (Fig. 5: 8).

3.3.3 Notches ($n=11$)

In some specimens, pressure retouching is visible. The sizes of the notches tend to be smaller than the scrapers.

Specimen C: 42. Notch, raw material is siliceous rock. Measures 21.27×14.46×6.31 mm, 2.1 g in weight. The edge is 4.44 mm in length, and the angle of the edge is 50 degrees. We suspect it to be transformed from a blade, and it has retouch on the proximal end (Fig. 5: 9).

Specimen C: 33. Notch, raw material is siliceous rock. Measures 18.32×17.46×4.93 mm, 1.17 g in weight. The edge is 5.42 mm in length, and the angle of the edge is 55 degrees. It appears to be retouched by pressure flaking on the distal end (Fig. 5: 10).

3.3.4 Borers ($n=5$)

The angle of the borers is relatively large. The borers are mostly made by retouching exhausted flake cores. Initial observations indicate use-wear at the tip, but we have not yet verified this by microtrace observations.

Specimen T0507③: 2. Borer, raw material is siliceous rock. Measures 33.12×28.67×14.95 mm, 16.1 g in weight. It was made on an exhausted flake core (Fig. 5: 11).

Specimen T0507③: 1. Borer, raw material is quartz sandstone. Measures 31.71×33.74×16.24 mm, 19.7 g in weight. It was made on an exhausted flake core (Fig. 5: 12).

3.4 Chunks, debitage, and manuports

Lithics in this category of chunks, debitage, and manuports range in weight from 0.12 g to 209.5 g (9.38 g average weight). Siliceous rock makes up the majority of the raw materials. Agate is used to make a few pieces, as well (Table 1).

4 Discussion

4.1 Analysis of the lithic assemblage and industry

The majority of the cores from the Xiaoyushu site are flake cores, but there are also some microblade cores. We tentatively refer to these microblade cores as "atypical microblade cores" because they are less prepared, in non-stereotypical forms, and slightly primitive in comparison with the more standard wedge-shaped, boat-shaped, and prismatic microblade cores of North China and Northeast China. The assemblage also features only a few complete flakes, no standard blades or microblades, and only a few blade-like blanks or microblade-like blanks; most of the flakes are fragments.

The Xiaoyushu tool assemblage is similar to commonly-seen Late Upper Paleolithic toolkits in Northeast China but without burins and bifacial arrowheads. There is a diverse range of scrapers, many of which are heavily retouched and used. Debitage and retouch techniques are mainly direct percussion using either hard or soft hammer, and pressure flaking, particularly for notching, also exist in this site.

Statistical analysis reveals distinct properties between tool groups, with tools using pebble blanks exhibiting larger dimensions and weights compared to those using flake blanks. Additionally, the data distribution demonstrates significant morphological variations (see Fig. 6: a). To explore the relationship between tool and flake production, we conducted linear regression analysis of the dimensions of flake scars on flake cores, flakes, and tools using flake blanks. The analysis revealed similar regression trends between flake scars on flake cores and flakes, whereas tools using flake blanks displayed discrete characteristics from the aforementioned sets of statistics. This statistics suggest that flake

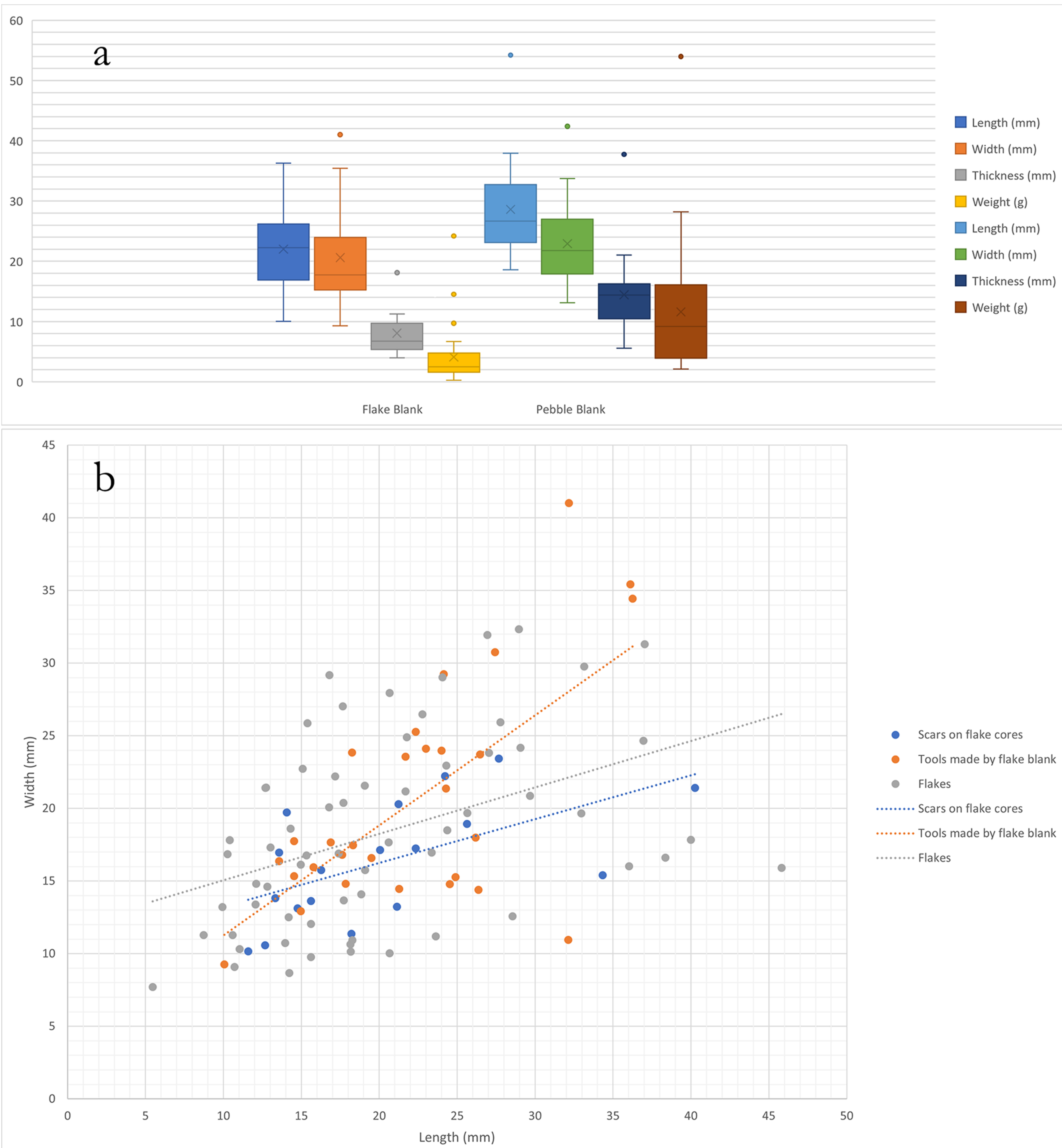

Fig. 6 Tool production in the Xiaoyushu site: (**a**) Box and whisker plots for the dimensions and weights of flake vs. pebble blanks for tools. (**b**) Scatter plot of the dimensions of flake scars on flake cores, tools made on flake blanks, and flakes

Table 2 Comparison of lithic assemblage of Xiaoyushu site, Linfu site and Laohutun site (Y: Existence; N: Non-Existence)

Type	Linfu Site	Xiaoyushu Site	Laohutun Site
Flake Core	Y(*N* = *6?*)	Y(*N* = *11*)	Y(*N* = *12*)
Boat-shaped Microblade Core	Y(*N* = *60+*)	N	Y(*N* = *1*)
Wedge-shaped Microblade Core	Y(*N* = *1*)	Atypical	Y(*N* = *8*)
Atypical Microblade Core	N?	Y(*N* = *6*)	Y(*N* = *2*)
Hammerstone	Y	Y	Y
Scraper	Y	Y	Y
Endscraper	Y	Atypical	Y
Point	Y	N	N
Notch	N	Y	Y
Borer	N	Y	Y
Burin	Y	N	N
Backed Knife	N	N	Y

production may have been localized, while tools exhibit characteristics indicative of exogenous origins.

4.2 Comparison with nearby sites

The Nenjiang River basin hosts several Paleolithic sites, including the Xiaoyushu site. To facilitate comparative analysis, this study focuses on the Xiaoyushu site, along with the nearby Linfu 林富 (Li 2015b) and Laohutun 老虎屯 (Li 2015a) sites. These sites, situated within Fuyu 富裕 County, lie north of the Uygur River and east of the Nenjiang River, nestled within the fluvial-alluvial plain characterized by numerous sand hillocks.

Tool assemblages between the Xiaoyushu and Laohutun sites exhibit similarities, yet notable differences emerge between the cores at each site. Our comparison of the lithic assemblages reveals a prevalence of wedge-shaped and atypical microblade cores at both the Xiaoyushu and Laohutun sites, contrasting with the dominance of boat-shaped microblade cores at the Linfu site. Notably, the Linfu site's tool assemblage stands out for its inclusion of points and burins, absent in both the Xiaoyushu and Laohutun sites. While end-scrapers at the Xiaoyushu site display atypical characteristics, the overall tentative categorization of tools across the three sites remains consistent (Li 2015a, b) (refer to Table 2).

There are various tool assemblages and different kinds of sites in the Late Upper Paleolithic in Northeast China, but microblade technology is the most representative lithic technology (Li et al. 2020; Li 2009; Zhao et al. 2022). However, in Northeast China, while microblade technology was popular, there were still various different lithic assemblages, such as traditional core-and-flake assemblage (Li et al. 2019). The Xiaoyushu site is not similar to the typical microblade assemblages in Northeast China, Northern China (Zhu 2023). Instead, the site features a relatively expedient tool assemblage, which may be related to the acquisition of raw materials or short-time occupations of this site.

5 Conclusion

The Xiaoyushu site is one of the few Late Upper Paleolithic sites in the Nenjiang River basin with a large area of excavation, and the findings from its excavation complement the Late Upper Paleolithic cultural sequence in the Nenjiang River basin. The site shows us an essential but less-commonly seen aspect of the Nenjiang River basin's microblade industry.

The lithic assemblage at the Xiaoyushu site displays microblade production elements, but the cores and debitage are not standardized. The site features "atypical" microblades and exhibits a primitive nature, but it also contains a number of pressure retouched tools. Although there are microblade cores, there are few microblades or tools made on microblade blanks. There are also lots of chunks, debitage, and exhausted tools. The nature of this site may have been a temporary camp or lithic production site for ancient humans who lived there for a short period of time, according to the aforementioned evidence.

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Author contributions Qiankun Quan. obtained funding and initiated the project. He Tian and Shuguang Bao conducted the fieldwork and site sampling. Qiankun Quan, Pengxu Pan, He Tian, and Shuguang Bao conducted the stratigraphic, dating, and palaeoenvironmental studies. Qiankun Quan and Pengxu Pan analyzed and identified the raw materials. Qiankun Quan and Pengxu Pan analyzed the stone artifacts. Qiankun Quan and Pengxu Pan wrote the main text with specialist contributions from the other authors.

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Data availability The data that support the findings of this study are available from the corresponding author, Qiankun Quan, upon reasonable request.

Declarations

Conflict of interest No potential conflict of interest was reported by the authors.

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