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ИЗВЕСТИЯ

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Paleolithic Materials Found in Tuva Republic, Russian Federation

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Abstract. In September 2011, the Russian and Japanese expedition conducted a surface survey to find Paleolithic sites in Tuva Republic, Russian Federation. Paleolithic archaeological materials were collected in four different areas. Separate stone artifacts have on their surfaces visible traces of eolian processing – corrasion. By location of the sites, technological and morphological features of collected lithics, the artifacts have a possibility to belong to lower and middle Paleolithic.

Key words: Tuva Republic, Paleolithic, surface findings, corrasion, exposed artifacts.

Introduction

Possibility of succession of human being's adaptation to high latitude cold environment has been discussed [Late Mousterian Persistence..., 2011]. Based on the discussion, there are some questions coming up. How far north human being could reach during lower Paleolithic? Are there any relationships between appearance of Upper Paleolithic and modern human's (*Homo sapiens*) migration and older species' extinction? What are the similarity and difference of adaptation behavior to cold environment during the Middle and Upper Paleolithic? Siberia is a central field to answer these questions. However, at the same time, archaeological

research and study do not equally proceed in everywhere because of Siberian vast land area.

S. Astakhov has started conducting a survey of Paleolithic sites in western part of Tuva Republic, Russia, since 1960s, and he found many archaeological sites from Acheulian to microblade assemblages [Астахов, 1986, 2008; Orimo, 2001]. In 2011, S. N. Astahov, H. Kato, K. Suzuki, and S. S. Makarov conducted a survey to confirm locations and landscape of already found archaeological sites and to find new sites from August 31 to September 6. In this paper, we report the summary of our survey and collected archaeological findings.

Surveyed Archaeological Sites

Tuva Republic is located at N 49–53°, E 88–98° which is called «the center of Asian continent»*. The capital city is Kyzyl (Кызыл). Population of the country is about 300,000. The ethnologic percentages are Tuvan who speaks Turkic origin Tuvan language (64 %), Russian (32 %), and Khakas (2 %). Tuva was historically known as Tannu-Uriankhai. [München-Helfen, 1996]**.

Eighty percent of land mass of Tuva is mountain landscape which primarily consists of Sayan Mountains. Tuva also has upstream of Enisej (Енисей) River which is the world 5th longest river. Tuva is surrounded by Republic of Altai in west, Republic of Khakassia in northwest, Krasnoyarsk region in north, Buryat Republic and Irkutsk Region, Russia, in northeast, and Mongolia in east and south (fig. 1 upper). Eastern Tuva is the southern periphery of Taiga forest. The area has steep mountains and valleys. Hundreds of streams run across the Tuva Basin in western Tuva. There are also steppe and desert environments spread from Central Asia. At this time, we surveyed 4 different geographical areas; Dun Khemchin (Дзун-Хемчинский), Varun Khemchin (Варун-Хемчинский), Ulug Khem (Улуг-Хемский), and Ka Khem (Ка-Хемский) (fig. 1). Artifacts are found and collected surface scattered condition at the top of hills, slope of hills, and on river terraces. Time periods of archaeological sites written below are temporally defined by Astakhov based on geographical archaeological site location and characteristic of artifacts.

1. Dun Khemchin Area (fig. 1, 1, 2).

All archaeological sites are located on the right bank of Chadан (Чадан) River, but at some cases, they are found on different levels of terraces. We surveyed Vayan Tala 1 (Ваян-Тала 1), Vayan Tala 2, Vayan Tala 3 and Vayan Tala 4, and collected a graver (fig. 2, 1), pick tool (fig. 3, 8) and flakes. Vayan Tala 4 is a newly found site at this survey, and it might belong to middle Paleolithic. At Chinge Dag Uju (Чинге-Дэг-Ужу), we surveyed Chinge Dag Uju 1 through 4 sites. We collected gravers and cobble tools from each sites above. Chinge Dag

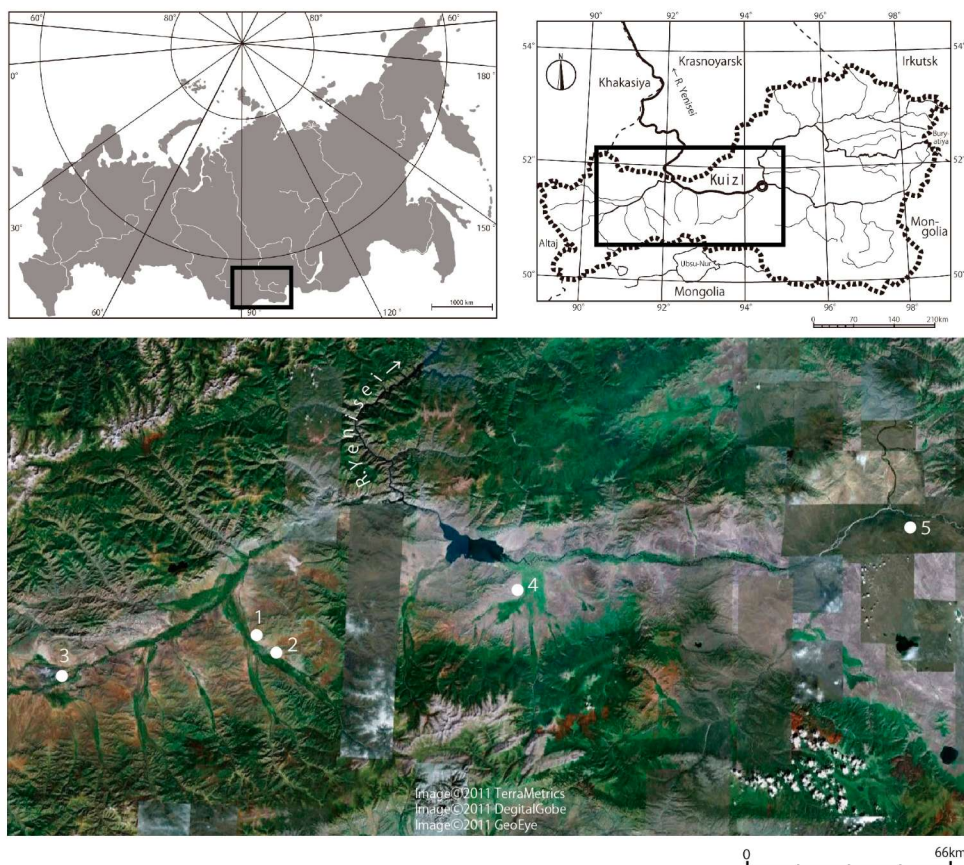
* «Тува» is Russian writing. «Тыва» is Cyrillic syled Tuival language. This style is used Tuivan authors. Also Kyzyl has many different ways of spelling. In this paper, except a direct citation, we use Tuva and Kyzyl.

** Cited from official HP (GOV.TUVA.RU Республика Тыва официальный сайт). <http://gov.tuva.ru/news.aspx>.

Uju1 is possibly the Neolithic and Upper Paleolithic site. Chinge Dag Uju 3 and 4 are Middle Paleolithic sites. [Астахов, 2008, с. 79–80].

2. Varun Khemchin Area (fig. 1, 3).

All archaeological sites are located on right bank of Khemchin (Хемчин) River. Even two flakes were collected at Ust' Khaya cave, its time range is unknown. At Don Terezin 1 (Дон-Терезин 1), pottery fragments, scrapers, and flakes were collected. The site might be occupied during Bronze Age and Upper Paleolithic. We found a lithic tool which should be a cleaver at Don Terezin 2 (fig. 4, 11). If this classification is appropriate, the site possibly belongs to Lower Paleolithic.



Дзун-Хемчинский район (Dun Khemchin area)

- 1 Ваян-Тала 1,2,3,4 (Vayan Tala 1,2,3,4)
- 2 Чинге-Дар-Ужу 1,2,3,4 (Chinge Dag Uju 1,2,3,4)

3 Варун-Хемчинский район (Varun Khemchin area)

- Дон-Терезин 1,2 (Don Terejin 1,2)
- пещера Усть-Хая (Ust' Khaya Cave)

4 Улуг-Хемский район (Ulug Khem area)

- Пункт-Пестуновка (Punkt Pestunovka)

5 Ка-Хемский район (Ka Khem area)

- Хая-Бажь 1 (Khaya Baji 1)
- Суг-Бажь 1,2 (Sug Baji 1,2)
- Бурем-Хем 1 (Burem = Khem 1)

Fig. 1. Tuva Republic and Surveyed Archaeological

3. UlugKhem Area (fig. 1, 4)

In this area, we surveyed Punkt Pestunovka (Пункт-Пестуновка) site which is located on the left bank of Aruig Uju (Арыг-Узю) River. An arrowhead, a wedge-shaped microblade core, a single and a double-edged pebble tools were collected (fig. 4, 15). The site occupation period is from the Middle to Upper Paleolithic [Астахов, 2008, с. 82–84].

4. Ka Khem Area (fig. 1, 5)

Ka Khem area is to the east of the capital city, Kyzyl. Archaeological sites exist on the right bank of Ka Khem (Ка-Хем) River. Khaya Baji 1 (Хая-Бажь1), Sug Baji 1 (Суг-Бажь1), Sug Baji 2, BuremKhem 1 (БуремХем1) were surveyed. From these sites, we collected flakes, blades, and cores belong to the Upper Paleolithic or Middle Paleolithic.

Collected Artifacts

Figure 2–4 show what we found through our survey. Identification of lithology is defined by M. Naganuma's macroscopic observation; therefore, we only write limited description.

Figure 2, 1 is a graver that has flat secondary retouches on left dorsal margin. Its blank is a longitudinal flake, and there is wide area of cortex on the dorsal surface. Whole morphology is unknown because of the absence of lower part of the lithic. We can see a *chapeau de gendarme* like facets on the platform. The lithic material is purple quartzite with strong corrosion*. It is found at Vayan Tala 2. Figure 2, 2 is a longitudinal flake. No platform left because of a truncation. The direction of negatives shows 180 degree opposite. Strong corrosion is confirmed all over the flake. Lithic material is a flint or a kind of sedimentary rock. The flake was collected at Vayan Tala 4.

Figure 2, 3 is a flake, and right half of the flake is absent. Because of it, platform does not show complete figure. However, it seems like a *chapeau de gendarme* like platform preparation. Strong corrosion covers all over the flake. Lithic material is a purple quartzite. The flake was collected at Vayan Tala 4.

Figure 2, 4 is a flat triangle flake that is similar to Levallois point. The lithic illustration organized and treated as Levallois point. Cortex is remained on dorsal surface, and primal and other flake negatives show occurrence of uni-directional flaking. It also does not have typical Y-shape or V-shape ridge on its dorsal. The platform is formed by *chapeau de gendarme* platform preparation; however, this platform is not used as actual percussion platform. There is another true platform, and its flaking angle is very sharp. From that observation, we regard the Levallois

* It is a weathered layer on lithic surface. Corrosion can be used as a chronological marker and provides a attribute to study denudation. Researchers study and define the geological event and sediments that are closely related with the lithic's corrosion (e.g. Matsumoto 1987). This method is useful to define the time period of an artifact and to understand Paleolithic site formation of area that has weak development of soil sedimentation. For example, it is not clear on artifacts in this paper, if the condition of corrosion is different between dorsal and ventral side of a lithic, we can expect that the artifact had lied on ground surface for a long time under very dry and windy environment.

point like flake was removed from discoidal or bifacial core. Lithic material is grey quartzite. The flake was collected at Vayan Tala 4.

Figure 2, 5 is a small single edged pebble tool made of river pebble. Strong corrosion is confirmed all over the tool. Lithic material is ochrous sedimentary rock. This pebble tool was collected at Sug Baji 1.

Figure 2, 6 is a graver, and its blank is a thick flake removed at a joint from a core. On left margin, unequally worked denticulate retouches can be seen. Lithic material is hard sandstone. The specimen was collected at Don Terezin 1.

Figure 2, 7 is a triangle shaped flake. Even though preparation of the platform is not much dense, it seems like *chapeau de gendarme*. Strong corrosion covers all over the flake. Lithic material is a green quartzite. The flake was collected at Vayan Tala 4.

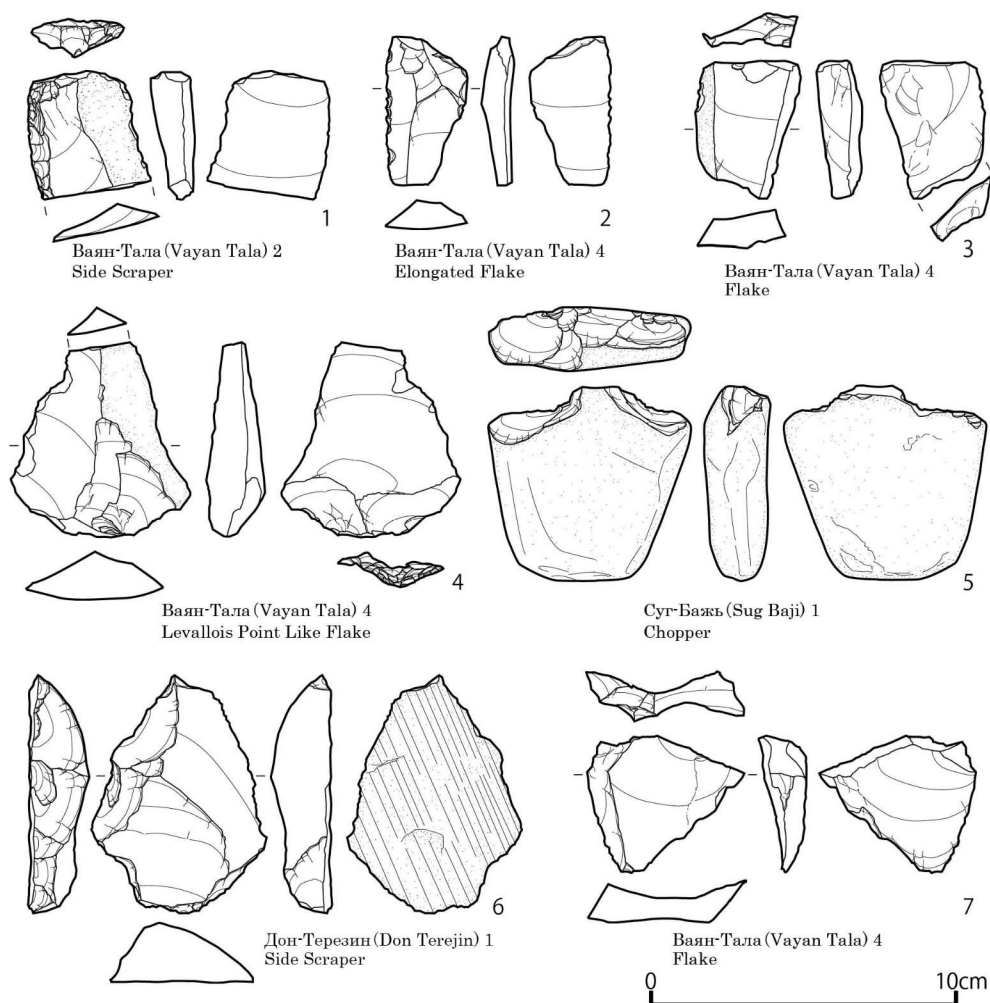


Fig. 2. Collected Lithics in Tuva Republic

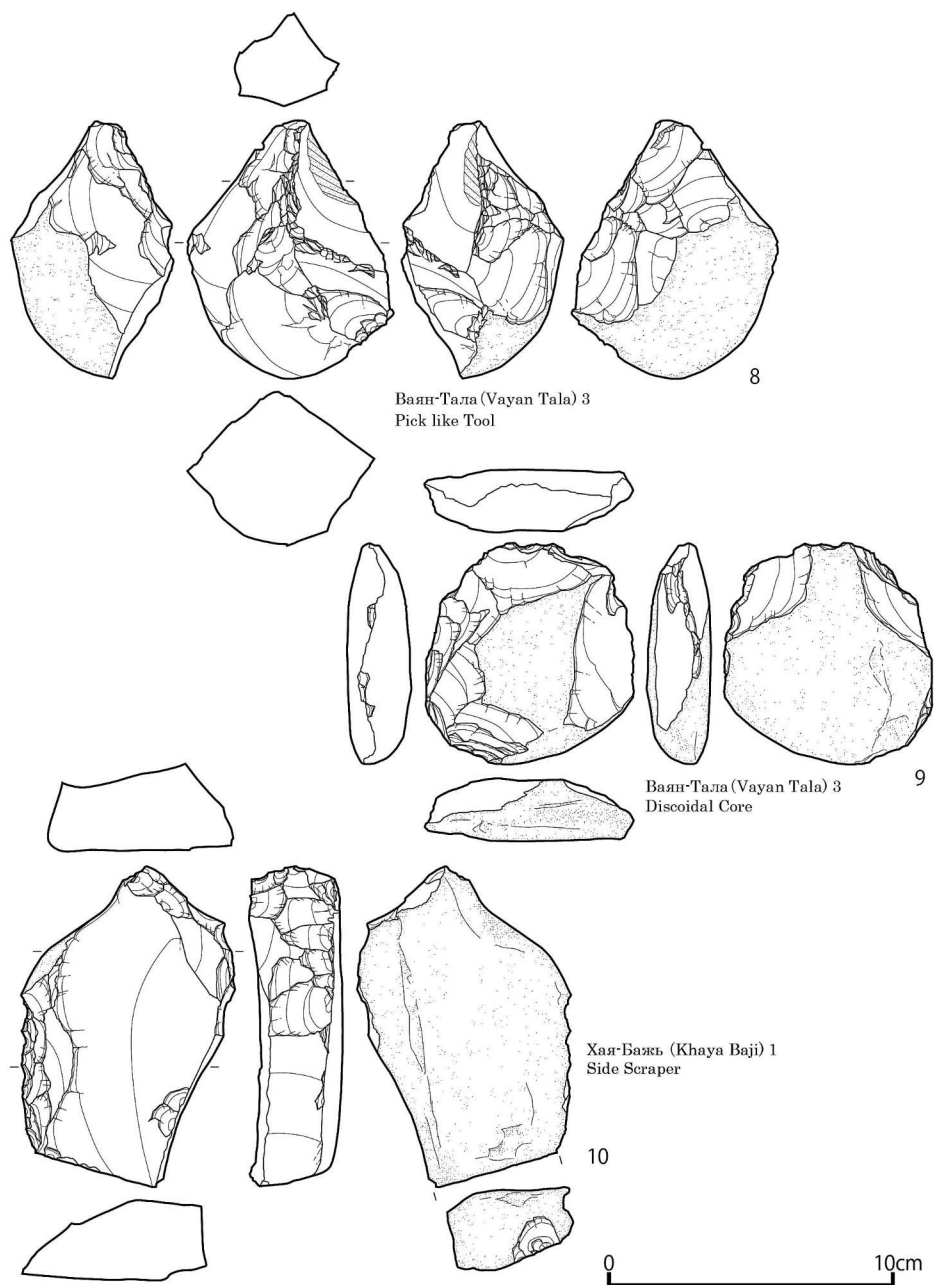


Fig. 3. Collected Lithics in Tuva Republic

Figure 3, 8 should be classified as a pick tool rather than a core. Blank of the tool is river cobble. On the flake ridgelines, «obtuse angle flaking» is dominantly used [Nagai, 2011]. Lithic material is a fine-grained quartzite. The tool was collected at Vayan Tala 3.

Figure 3, 9 is identified as a discoidal core which blank is a flat river pebble. The core was left before platform preparation started. Lithic material is a coarse igneous rock. The flake was collected at Vayan Tala 3.

Figure 3, 10 is identified as a split pebble with wide cortex area or a graver made of thick flake blank. Lithic material is an ocherous sedimentary rock. This specimen was collected at Khaya Baji 1.

In figure 4 heavy and large tools are illustrated. Because these kinds of tools generally exist all the time and everywhere in the Paleolithic, the tools cannot have time index. However, some of them could belong to the Lower Paleolithic.

Figure 4, 11 is identified as a cleaver that is made of a split pebble at a joint or a thick flake with wide cortex area. Lithic material is a quartzite or hard sandstone. The specimen was collected at Don Terezin 2.

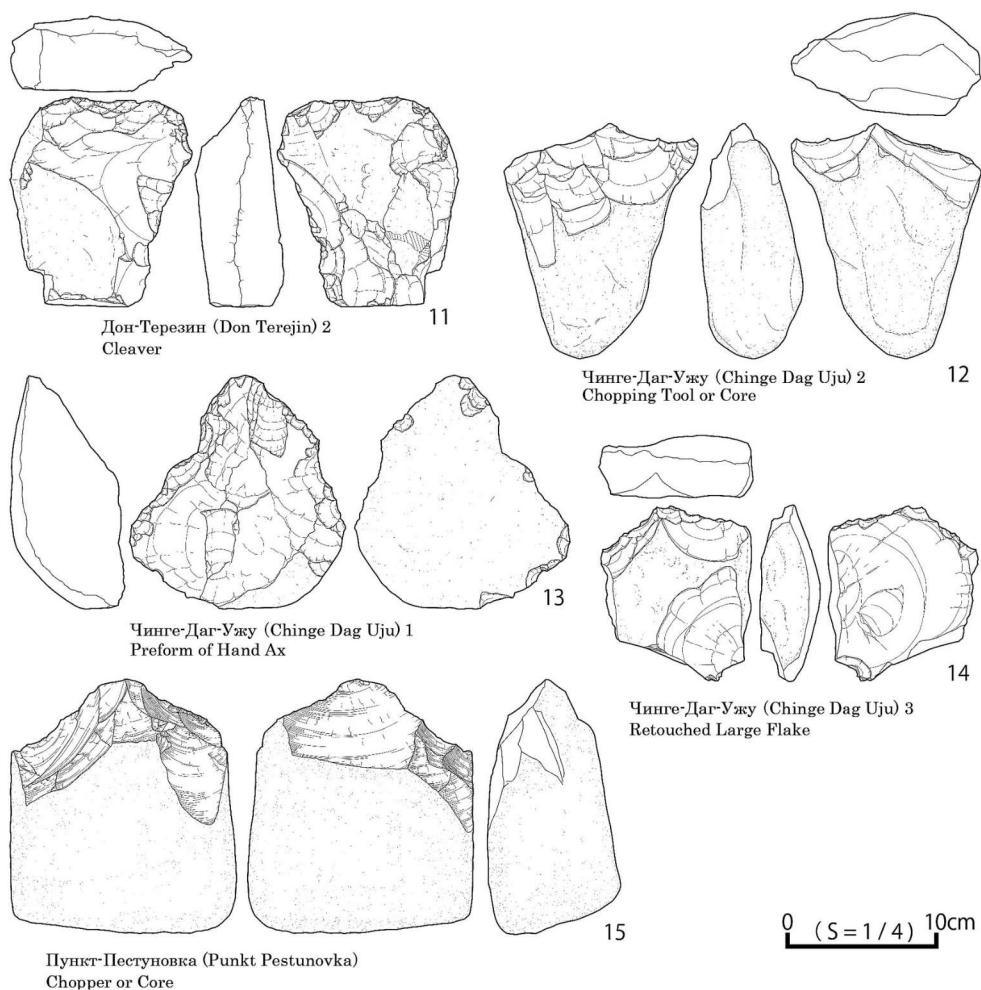


Fig. 4. Collected Lithics in Tuva Republic

Figure 4, 12 could be a large double-edged pebble tool made of river pebble or a flake core. Lithic material is sandstone. The artifact was collected at Chinge DagUju 2.

Figure 4, 13 seems like a very early stage preform of point shaped tool from its figure. Cortex fully covers this large flake dorsal surface, and secondary retouches are worked on ventral margins. If we classify it cautiously to avoid misidentification, the classification name could be retouched flake. However, from its size, there is another possibility as preface of a hand axe. Because of this reason, illustration of dorsal is located on right side. Lithic material is hard sandstone. This artifact was collected at Chinge Dag Uju 1.

Figure 4, 14 has cortex on plat form and dorsal. There are rough secondary retouches in marginal area of this thick flake. Lithic material is a coarse grained sandstone. This specimen was collected at Chinge Dag Uju 3.

Figure 4, 15 is a double-edged pebble tool with a pointed edge, or it is a flake core removing informal flakes. Lithic material is sandstone. This artifact was collected at Punkt Pestunovka site.

Discussion

In Altai mountainous area of west of Tuba Republic, well-preserved multi component archaeological sites from Middle to Upper Paleolithic have been continuously excavated by Russian Academy of Science, Siberian branch. As outcomes of the researches, shifting process of lithic assemblage were understood and reported as starting from Mousterian related assemblage, going through large blades and microblade (bladelet), and reaching to leaf shaped bifacial point assemblage [Палеолитические комплексы..., 1998; Природная среда и человек..., 2003; Derevianko, Shunkov, 2005]. From macroscopic point of view, because Mousterian assemblage shows highly dense distribution, it is possible to expect a migration of the Mousterian people from west to east*. In Khakashia Republic, the north of Tuva Republic, and Minusinks Basin of Krasnoyarsk, Mousterian related assemblages were excavated at Dvugrazka (Двуглазка) Cave site and Kurtak (Куртак) 1 and 4 open site. In Mongolia which shares eastern and southern boarder with Tuva Republic, Mousterian assemblages were confirmed at several numbers of archaeological sites. These sites seem like distributed along Altai Mountains (Gorno Altai and Gobi Altai) that run across east-west direction [The Stratified Cave ..., 2000; Палеолит Восточных предгорий..., 2001].

Although the Altai Mountains region shows dense Mousterian site distribution, in Irkutsk region that shares a north-eastern boarder with Tuva Republic, Mousterian complexes have never been found in tributary of the Angara River, west shore of the Lake Baikal. Even though, Irkutsk State University and Hokkaido University research teams continue to excavate the area, any single Mousterian ar-

* Other than Paleolithic, Tuva Basin is well known to have many kurgans of Scythia. Since before A. D. 0, this land is a place which equestrian people nations were built such as the Hsiung-Nu, Rouran Khaganate, Gokturks. Also the land was a crossroad of their migration towards east and west.

tifact has been confirmed till today^{*}. In the Angara River tributary, there is non-Mousterian Middle Paleolithic assemblage which consists of discoidal core, graver and notched tool made of thick flake blank, flake origin triangular point. A possibility of the chronological shift of non-Mousterian assemblage to the early Upper Paleolithic assemblage, which started to add new large and small blades technology and movable arts, is expected [Naganuma, 2011].

Tuva Republic, which is located between the Altai Mountains and Baikal, Siberia, is outstandingly important region as a Northeast boarder of Mousterian distribution, and its relationship with emergence of the Upper Paleolithic assemblage. Although we could not conducted a survey at Sagri region, which is close to boarder of Mongolia, Astakhov reported and founded Mousterian like lithics in the region based on morphological and technological perspective (fig. 5) [Астахов, 1986; 2008]. Among the collected lithics from our survey, *chapeau de gendarme* like platform preparation (fig. 2, 1, 3, 4, 7), flat triangle flakes (fig. 2, 4, 7), and discoidal cores (fig. 2, 4; fig. 3, 9) are notable similar characteristics with Mousterian assemblage.

If we hypothetically expect the people who had Mousterian assemblage are Neanderthals in Siberia as same as know in western Asia and Europe, the collected artifacts could be evaluated as archaeological evidences of Neanderthal migration to Tuva Republic region^{**}. Although we cannot describe the details here, it is important that we could collect the artifacts which possibly belong to the Lower Paleolithic such as a pick tool (fig. 3, 8), a cleaver (fig. 4, 11), and a hand axe preform (fig. 3, 13). These artifacts will contribute to discussion of unsolved archaeological researches and questions.

Conclusion

Our survey was supported by Office of Cultural Resource Preservation, Department of Cultural Affairs, Tuva Republic, and National Ethnological Museum of Tuva Republic. We appreciate their support and help from the bottom of our heart. This paper is a part of «Overall Research on the Adaptive Behavior of Late Paleolithic Man in Northeastern Eurasia» (Project leader: T. Sato), and A01 Group's «Archaeological Research of the Learning Behaviors of the Neanderthals and Early Modern Humans» (Project leader: Y. Nishiaki) in JSPS project «Replacements of Neanderthals by Modern Humans: Testing Evolutionary Models of Learning» Grant-in-Aid for Scientific Research on Innovative Areas, Grant No. 22101001.

^{*} In Angara tributary, there are Mousterian like lithics among only in ground surface findings.

^{**} This hypothesis and evaluation is not self-evident. Increase of archaeological site excavations are needed that have lithic assemblage and human remains together *insitu*. In other words, a possibility of existence of unknown archaic human specie and a possibility of Mousterian using modern human (*Homo sapiens*) should not be easily denied because there is no example of human remains found with lithic assemblage in this area.

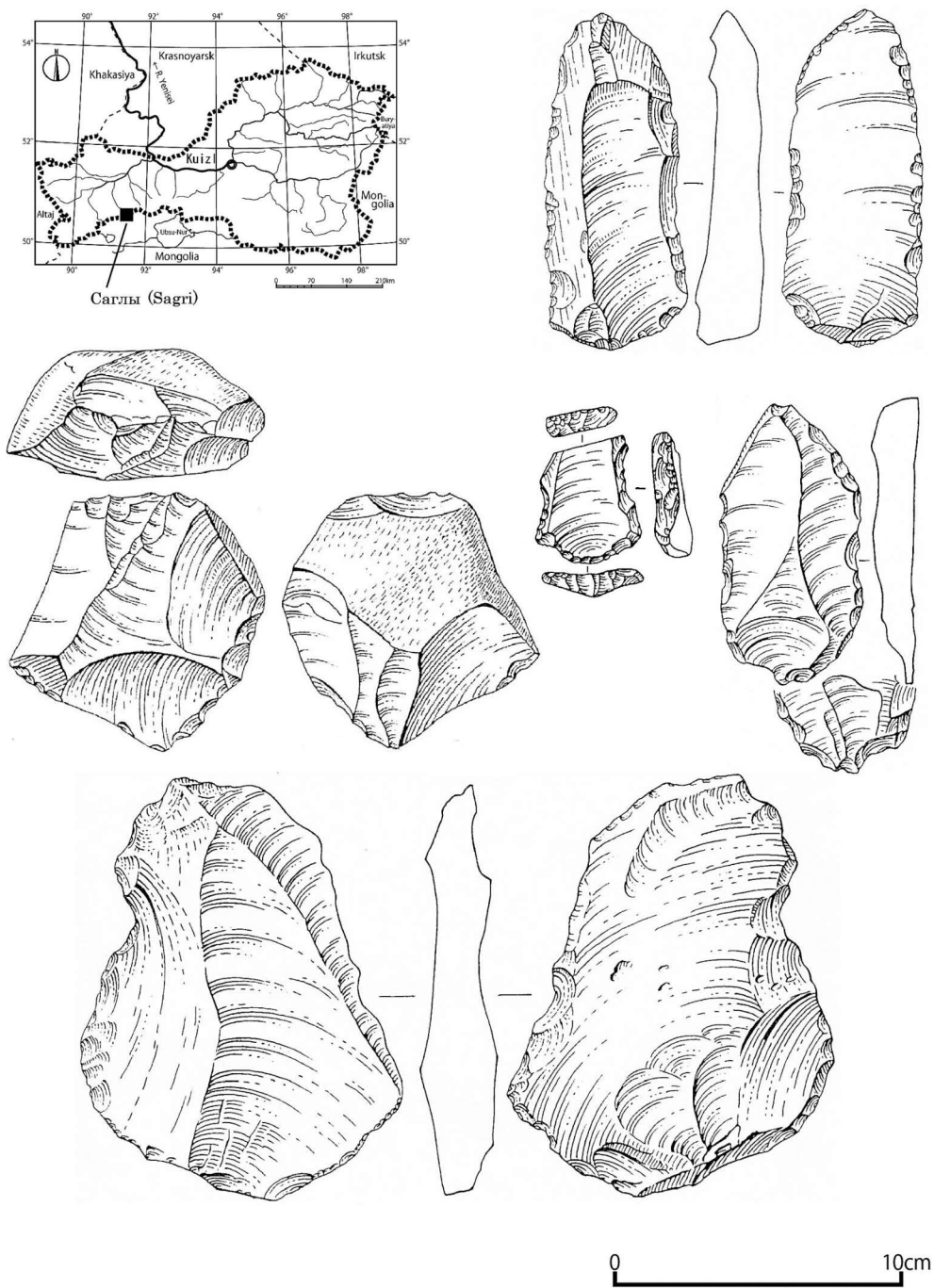


Fig. 5. Mousterian Lithics Collected in Sagri Archaeological Site Assemblage [Асрахов, 2008]

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Палеолитические материалы, найденные в Республике Тыва Российской Федерации

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Аннотация. Вводятся в научный оборот новые материалы, полученные в ходе проведения натурно-рекогносцировочных работ на территории Республики Тыва российско-японской археологической экспедицией в сентябре 2011 г. Материалы археологических коллекций были собраны в четырех районах республики: Дун-Хемчинском, Варун-Хемчинском, Улуг-Хемском, Ка-Хемском, где фиксировались в экспонированном состоянии. Отдельные каменные артефакты на своей поверхности несут следы сильной золотой обработки – корразии. По технико-морфологическим характеристикам ансамбли каменных артефактов,

собранные на территории Республики Тыва, предварительно могут быть отнесены к ранне- и среднепалеолитическому времени. Обнаруженные материалы, вследствие своеобразия форм, могут быть интерпретированы как археологические свидетельства миграции неандертальцев на территорию рассматриваемого региона.

Ключевые слова: Тыва, палеолит, экспонированные артефакты, коррозия.

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