ON SOME NEOLITHIC (AND POSSIBLY PALAEOLITHIC) FINDS IN MONGOLIA, SINKIANG AND WEST CHINA.*

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In the course of the past two years, when they were in the field with the Third American (1930) and the Haardt-Citroen (1931) Central Asiatic Expeditions, the authors of the present note had opportunities for making a series of archaeological observations over an extensive area. It seems interesting to report on those: first because the recognised sites afford new geographical indications for a future map of the prehistorical culture zones in China; and, secondly, because the collected material contains a certain amount of artifacts belonging to rare or still undescribed types.¹

Ten localities, scattered between Kalgan and Aksu (W. Sinkiang) are reported on the adjoining sketch map (fig. 1). We will describe them successively.


Hatt-in-Sumu, a Mongol settlement situated at some 250 kilometers NW. from Kalgan,² was visited first and recognised as a rich Neolithic place since 1928 by the American Expedition (E. Spocke); so that a complete study of the site belongs to the general description of the Mongolian lithic cultures actually prepared by our friend Dr. Nelson of the American Museum of Natural History. We wish only to mention here that, using the specimens actually kept in the Geological Survey of China, the Hatt-in-Sumu industry, although clearly allied to the "Manchurian-Mongolian" Neolithic type³ by the presence of the

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1. All these specimens here described are kept in the collections of the Geological Survey of China.

2. Hatt-in-Sumu is also the center of the Swedish Mission directed by Dr. Eriksen, a friend and supporter of all the geologists working in Mongolia.

characteristic small conical nuclei in jasper and derived blades, contains an exceptionally large amount of middle sized spears or hatchets, the whole surface of which is cleverly chipped on both sides (fig. 2). The rock used for this kind of implements is a siliceous metamorphosed green sandstone.

In addition to these small “bifaces”, larger artifacts are commonly picked up on the ground, made of local siliceous intrusive rocks. Most of them are scrapers. The specimen illustrated in fig. 3, (a conical tool, pestle?), is an exceptional type.

No polished celts are recorded.

**Locality 2. Tung Gur basin.**

Across the whole Tung Gur basin stone implements of a clear Neolithic character are found in a disseminated condition almost everywhere, as it happens generally in Inner Mongolia. A rather exceptional site was however observed by us 13 miles E. from the lamasery Artung Gurret-in-Sumu, and 14

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1. The Tung Gur basin is filled by the famous *Platybelodon* beds (Miocene).
miles NE. from the so-called Elephant camp¹, along a Nor excavated in fossiliferous (Dinosaurian bone-bearing) Cretaceous deposits, and bordered by a 10 meter terrace of well cemented Middle Pleistocene gravels (fig. 4).

In this place, the artifacts collected on the floor of the Nor depression (five, on the whole) differ from the common Mongolian Neolithic types by several characters: substance, shape, size, weathering; and, from other indirect evidences, they may be regarded as of Paleolithic age.

Fig. 3. Conical Neolithic artifact in a flinty creviced rock. Hatt-in-Sum. Reduced to one half.

The best specimen (fig. 5) is a large convex scraper in hard Wū't'ai grey quartzite, strongly worn, but still perfectly clearly shaped and chipped. Length, 155 mm.; breadth, 90 mm.

¹ The place will be located on the Tung Gur basin map in Volume II of "Geology of Mongolia" (to be published by the American Museum of Natural History).
Another large quartzite piece (anvil or chopper, fig. 6) is made of a boulder, roughly flattened on the lower side, flaked around the borders, and strongly hammered on the convex, water worn, surface.

The chert nucleus (fig. 7 B), much worn, is less characteristic. A fourth possible implement (quartzite scraper?) is too much corroded for being represented here.

Now, the possibility that these pieces are Palaeolithic, rather than Neolithic, arises from the two following facts:

1) A striking likeness is observed between the specimen illustrated by fig. 6 and the implement from Chungar (Local. 10), shown in fig. 21 (p. 103). The latter is most probably Palaeolithic.

2) Along the border of the depression occupied by the Nor (fig. 4, in i), we have collected the sharply broken rhyolitic boulder illustrated in fig. 7, A. This piece is surely derived from the basal conglomerate of the Pleistocene terrace (a small patch of the cement of the conglomerate is still sticking to the flaked and worn surface of the stone); and it bears some decided appearances of having been artificially broken. If so, a certain amount of probability is reached that the other artifacts (fig. 5-7) are equally residual elements of the Pleistocene terrace, and consequently Palaeolithic.

An additional suggestion pointing in the same direction is that, in the collection made by the American Expedition in Central Gobi, and kindly shown
To one of us by Dr. Nelson, we noticed a large quartzitic implement, perfectly similar to the scraper illustrated in fig. 5, but clearly reworked along the edge at a much later time. As this latter chipping apparently is Neolithic, the original piece has a chance of being Paleolithic.

Fig. 5. Large Palaeolithic (?) scraper in quartzite. Tung Gurs. 2/3 natural size.


Between Uni Ussu and Stain Gol, along the road followed by the Haardt-Citroen Expedition, we did not observe but a single Neolithic site, half way between the lamasery Patomo Sumu and the small caravan center called
Fig. 6. Palaeolithic (?i) chopper or anvil, in quartzite. Tung Gur. Reduced to one half.

Fig. 7. A. Pleistocene artifact (?i) in rhyolite from Tung Gur (observe the patch of the sandy matrix of the Pleistocene conglomerate sticking on the flaked surface). B. Palaeolithic (?) nucleus in chert from Tung Gur. About 2/3 natural size.
Fig. 8  Large Neolithic pick-axe in amphibolite from the desert W. of Unii Usu and E. of Etsin Gol. Much reduced.
Hoyu Hamatu (at 45 kilometers of each). This site was met with in a dry sandy depression, on the eastern border of big sand dunes. Several minute blades and many small conical nuclei in jasper of a typical Manchurian-Mongolian Neolithic type were lying on the ground. But, associated with this common industry, we collected the large pick-axe illustrated in fig. 8, made of an elongated diorite boulder (length, 360 mm.). The piece, carefully trimmed by a distinct battering along all the edges, is perfectly symmetrical and well balanced.

![Diagram of section of Locality 4](image)

**Fig. 9.** Section of the Locality 4. 1, Tilted granite conglomerate (Sanmenian?). 2, tilled red clays (Tertiary or Cretaceous). T, High terrace, covered with a strongly patinated quartzite gravel, on which the artifacts are found. 4, Late Pleistocene ten-meter terrace.

**Locality 4. Between Suchow (蘇州) and Hami (哈密).**

The specimens represented in fig. 10 (a scraper, a point and a disk in hard white quartzite) have been found lying on the desert floor, together with several flakes and large nuclei, over an extensive 50 meter terrace (capped by a thick quartzitic gravel), in a sedimentary basin crossed by the Haardt-Citroen Expedition, 120 kilometers N. of Suchow, and 170 kilometers SE. from Mingchui, along the Hami trail (see fig. 9).

1. The sediments filling the basin and levelled by the quartzitic gravels consist in a series of strongly tilted red clays (Cretaceous?) and grey conglomerates (Sanmenian?), curiously similar to the sediments forming the folded fore-ranges of the Tien-shan. A puzzling fact is the great number of quartzitic elements in the 50 meter gravels, in contrast to their absence in the underlying tilted conglomerates. We suppose that the quartzite is derived from some Sinian formation, associated with the thick siliceous limestones of the Kuku Ula (200 km. N. from Suchow, along the Etin Gol), but we did not find it in situ.
Our prospection of the site was so hurried that we could not collect more specimens. A methodical exploration of the terrace, however, would surely be rewarded by a rich series of interesting pieces.

Fig. 11. Neolithic biface in flinty green rock from Santaolintze (W. from Hami). Reduced to 4/5.

In the absence of any stratigraphical data, the pre-Neolithic age of this industry cannot be positively proved, but it is suggested by the strong patination of the implements, their rather large size, their typically archaic type, and by the apparently complete absence in the site of any artifact of Neolithic type.

Locality 5. West from Hami (哈密).

Along the main Hami-Chikuchintze (七角井子) road (leading to Turfan and Urumtsi), a series of loessic hills or patches are met with, each associated with a spring and a few houses. In one of those places, called Santaolintze (三道岭子) (61 kilometers W. from Hami), we found a good prehistoric
Fig. 12. Large Neolithic pick-axe in flinty green rock from Chilmchinze. Much reduced.
site, where many stony implements were lying on the ground, or slightly embedded in the uppermost layers of loess: this will be our locality 5.

The artifacts collected in the site consist chiefly in large, non-patinated, scrapers (120 mm. long, in average), made of rhyolitic rocks. But we found also a small blade, and a cylindrical microwevel (in black chert) clearly belonging to the Manchurian-Mongolian Neolithic type.

The specimen in fig. 11 is a fine biface tool, made of an oval pebble of the same green siliceous rocks as the artifacts described below, from locality 6.

**Locality 6. Chikuchintze (七角井子 ).**

Any traveller in Sinkiang knows the curious sandy depression of Chikuchintze, where the Hami-Turfan highway forks from the Hami-Urumtse road, right in the heart of the Tienshan range. At 11 kilometers from the village of Chikuchintze, along the Turfan road, not far from a temple built near a well, at the foot of a rocky spur, we found the fine specimens illustrated in figs. 12 and 13, associated with several scratchers or flakes of a more common type.

The specimen in fig. 12 is a large pick-axe (310 mm. long), cutting by one end, and piercing by the other. The trenchant edge of this remarkable piece is skillfully chipped, but does not show the "Solutrean" type of retouche observed in several large Neolithic pieces of Manchuria. A notch for the attachment of the tool to a handle is clearly indicated.

The two specimens in fig. 13 so curiously similar to each other, seem to represent a very elaborate, definite and specialized type of "burin"—the working part of the tool being the small beak b. Nothing like it, so far as we know, has been reported from the Neolithic cultures of Central and Eastern Asia.

All the artifacts collected in locality 6 are made of a peculiar green, flint-like, rock (intrusive?), abundantly found in the huge gravel fan descending from the West in the Chikuchintze depression. The rock occurs in situ along the Turfan road in the first pass, 35 kilometers W. from Chikuchintze.

Fig. 13. Two Neolithic curated artifacts in flinty green rock from Chikuchinze. 6. beak.
Natural size.
At the very eastern border of the new town of Akso, some 20 meters over the level of the Akso river, extends a perfectly desertic platform, made of the flour-like silt improperly called "loess" in the Tarim basin. Those Pleistocene sediments are barren of any fossil. But, on the surface of the terrace,

Fig. 14. Map of the Akso area (according Sir A. Stein). The crosses indicate the Neolithic sites. Dotted area: bare loessic plateau. White area: cultivated zones.

we found a series of prehistorical dwelling places, indicated by numerous broken stones, fragments of hand-made pottery, and, more rarely, by small patches of ashes (s. fig. 14).

The lithic industry can be described as a "pebble industry", since the used material consists almost exclusively in large or small, well rounded,
Fig. 15. Neolithic notched pebbles (net-stones) from Aksu.
pebbles of a hard green sandstone. Sometimes the flat pebbles are notched at both opposite sides (net-stones, fig. 15). Sometimes they are chipped in the shape of a circular disk (fig. 16). Sometimes they are retouched as regular.

Fig. 16. Neolithic flat disks (chipped pebbles) from Akou.

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1. Similar net-stones have been collected by Dr. Nelson in the Neolithic sites along the Yangtze river. Other net-stones of a much more elaborate type occur in the Anyang site (Yin dynasty), associated with numerous knives somewhat similar to the specimen in fig. 19 (Dr. Li Chi's excavations).
Fig. 17. Neolithic scrapers or knives from Aksu.
knives (fig. 17). Many rounded elongated pebbles have been truncated, possibly in order to make use of the convex extremities of the stone. Others have been simply used as hammerstones, or rather as grinders (or pestles)—both ends of the pebble being worn in several distinct facets (fig. 18, four specimens). A much more refined piece is a knife (fig. 19) made of soft sandstone on which the striation due to polishing is perfectly distinct.

![Image of Neolithic hammerstone](image)

Fig. 18. Neolithic hammerstone, or pestle, from Aksu.

The pottery, apparently associated with the stony artifacts, is of two types: a red one, very coarse-grained, and sometimes used for large vessels; and a black one, of a finer ware. A single fragment was observed, showing the impression of a basket. Several kinds of handles are observable on the fragments: solid or annular. In other cases, perforations are present for suspension.

No traces have been observed, in spite of a careful research, of the small blades and nuclei, in jasper or chalcedony, so characteristic of the Manchurian-Neolithic culture; nor any trace of the Yanchao painted pottery.

Those various cultural remains have been evidently left over the plateau by some Neolithic fishermen who were camping on the border of the Aksu
Darya (this population extending possibly all along the 'Tarim river'). But they differ so widely from all the Neolithic industries so far described from Western and Northern China that it seems still impossible to give them a definite archaeological place.

The less unsatisfactory analogies are perhaps with the Neolithic in-

Fig. 19. Polished Neolithic knife in soft sandstone from Aksu (observe the artificial striation, due to the polishing). Natural size

1. From the fact that those Neolithic people were living over the loessic plateau, and not down in the plain (as do the present farmers), it might be conjectured that the rivers were stronger, or the country more marshy in those times than now.
Fig. 20. Section across the Huanghe terraces, S. of Chungwei, Locality B.—D, Modern sand dunes, t, Loeasic terrace. S, Sammelen consolidated sands (ancient dunes?). C, Hard red Carboniferous sandstone (containing Sigillaria). The artifacts occur lying on the ground on the surface of S.
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dustries found along the Yangtze river (Nelson), and more recently by Dr.
Bowles in W. Szechuan and Eastern Thibet.

Locality 8. South of Chungwei (ªº)

Some 40 kilometers S. of Chungwei, at the place (Shat’o) where big
sand dunes, reaching the Huanghai, cut the new road leading from Ninghia to
Lanchow (by the left bank of the Yellow River)¹, abundant cultural remains of

Fig. 21. Paleolithic axil, in quartzite, from the Chungan river.
an undecided age occur under the sand dunes on the worn surface or the thick
Santonian formation² capping the higher terrace left by the river (fig. 20).

With the exception of a few broken pebbles (in various green rocks), the
cultural artifacts consist in flakes and scrapers of hard quartzite, very similar in

1. At this place, the carts have to be transported by boat, along some two kilometers.
2. This formation consists in clayish sands, crowded with elongated and ramified con-
creptions: possibly the remains of Santonian sand dunes.
appearance to the Paleolithic pieces collected in situ by F. Licent at the base of the loess in the Chingyang area (E. Kansu). And Paleolithic they can be, in fact, stratigraphically, since, by their position right over the warm Sammamish sediments, they represent possibly a residual material left by the "deflation" of a loessic cover.

**Locality 9. NW. Ordos.**

Evidences of a probably Paleolithic industry have already been reported by Licent and Teilhard from the Ordos desert, face to the catholic Mission of St. Jacques (Santoso). In the course of a day's trip (January 1932) a few more quartzite artifacts, strongly patinated, have been collected, and traces of a regular workshop observed in the same area. One of the artifacts belongs to the same type as the Paleolithic specimens 1-3 described in our Memoir of 1930 on the Reddish Clays of Shansi and Shensi, Pl. VII.

**Locality 10. Chunge River.**

The locality 10, already described in our Memoir of 1930 (loc. cit. just above, p. 33, fig. 13), is only mentioned here "pour mémoire", in order to introduce the Paleolithic specimen in fig. 21, alluded, but not illustrated, at that time (loc. cit., p. 32-33). As told above (p. 86), the renewed interest of this piece is due to its strange similarity with the hammererd quartzite found in the Tung Gur basin (locality 2), and represented above in fig. 6.

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1. Boule, M., Breuil, H., Licent, F., and Teilhard de Chardin, P., Le Paléolithique de la Chine, Archives de l'Institut de Paléontologie Humaine.