

ON THE DISCOVERY OF A PALÆOLITHIC INDUSTRY IN NORTHERN CHINA

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During the journey in Inner Mongolia, the geological results of which we have summarized in the preceding communication, we had the good fortune, F. Licent and I, of finding, in three different places (along the Choei Tong K'eu in the South of Ning Hia, along the Sjara Osso Gol in the southeastern corner of the Ordes, and near the village of You Fang T'eu in the South of Yu Lin), palæolithic remains, in excellent stratigraphical and palæontological conditions.

1. *The Palæolithic of the Choei Tong K'eu.*

Our first discovery of a palæolithic industry *in situ* was made along the Choei Tong K'eu, a small ravine running eastward, parallel to the Great Wall, from the small fortress of Ts'ing Choei Ying to the town of Houng Tch'eng, quite close to the inn called Choei Tong K'eu (25 kilometers to the East of Houng Tch'eng). In the loess bluff (25 m. high and 2 m. long) bordering the Choei Tong K'eu, about twelve meters under the level of the steppe, a true "foyer" (hearth) was met with (text-fig. I). Lying on the

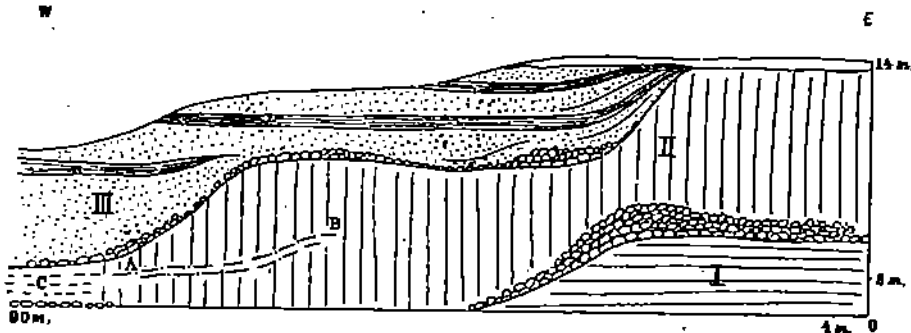


Fig. I. Section of the Choei Tong K'eu cliffs (near the Choei Tong K'eu inn). I, Red Earth (Pontian). II, loess with basal conglomerate. III bed of a post-loessic river (basal conglomerate, sand and clay). AB, palæolithic level. C, freshwater deposit (contemporaneous with the loess).

perfectly bounded archaeological soil (which we have cleared over a surface of 80 square meters), many hundreds of broken and worked stones (about 300 kilogs.) were found, mixed with broken and burnt bones.

The implements (points, scratchers, "coups de poing".....), made of quartzites, phsamites and silicified limestones which occur abundantly in the basal conglomerate of the loess, are of well defined shapes and generally of large size. They appear to be of Mousterian or early Aurignacian type.

Bony remains are, for the most part, split bones and teeth of horse and bison. But we found also broken teeth of *Rhinoceros*, *Hyaena*, *Gazella*, *Antilope* (of a large size), and fragments of *Struthiolithus*.

Within one kilometer around the inn or Choei Tong K'eu we found four other "foyers" (smaller than the first one, but very distinct), and many isolated pieces of quartzite deep in the loess. In fact, almost everywhere, along the Choei Tong K'eu in any place where the loess has weathered out, worked Palaeolithic stones can be found, lying on the ground. A nucleus was picked up by us in the cliffs as far as Ts'ing Choei Ying (30 kilometers to the East of the inn of Choei Tong K'eu), so that we think the whole loessic basin of the Choei Tong K'eu must be very rich in palaeolithic remains.⁽¹⁾ Already, some years ago, a missionary, F. Schotte, had collected in the loess some 5 kilometers to the East of the inn of Choei Tong K'eu, a skull of *Rhinoceros tichorhinus* and a fine quartzite implement (kept, now, in the Hoang Ho-Pai Ho Museum of Tientsin).

2. The Palaeolithic of the Sjara Osso Gol.

Along the Sjara Osso Gol (to the North of Siao K'iao Pan), the Palaeolithic was met by us, this year, in the lower part of the thick Quaternary formation described above (see our preceding communication), about 70 meters below the level of the Ordos plain.

In that place, worked stones and an enormous quantity of broken bones were found, not exactly disseminated in a bed; but, for the most part,

(1) The loess of the Choei Tong K'eu is of a sandy, and sometimes freshwater character. Apparently, in Quaternary times, a true lake existed not far from the actual site of the inn of Choei Tong K'eu.

lying on the upper flat surface of a bed of hard blue clay which is overlain by one meter of a sandy clay deposit and by cross-bedded sands (text-fig. II)

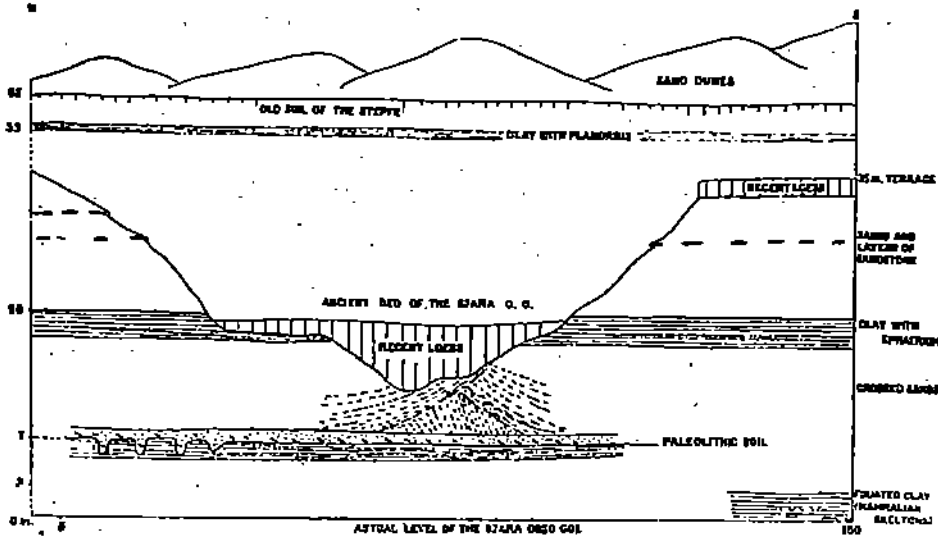


Fig. II. Front section of the Sjara Osso Gol cliffs at the point where palaeolithic remains occur. The top of the cliffs and the sand dunes are in the background.

The flat surface, just mentioned, is probably an ancient soil. We cleared it for a length of 80 meters, and found that, in the left part of the excavation, it was split by many cracks (filled with sand) in which stone chips and bones of small animals (Birds, Rodents, Insectivora) were especially numerous.

The palaeolithic implements of the Sjara Osso Gol are remarkably small,—probably in consequence of the lack of a satisfactory material. In the whole formation of the Sjara Osso Gol we have never seen a single fragment of any hard rock. The Quaternary man was obliged, therefore, to carry (from long distance, perhaps) the rather poor stones and, in fact, we have got the proof that he made use even of small pebbles. A very hard black quartzite seems to have been the most favourite substance. Chips, sometimes exceedingly small, and cutting, are very common,—true implements (scratchers, Mousterian points.....) rather rare. An exceptionally large scratcher (7 x 5 centimeters) looks very similar to the Ceoci Tong K'eu's implements.

The animal bones (probably remains of kitchen middens) are highly fossilized, and belong to numerous forms, not yet accurately determined: *Rhinoceros tichorhinus* (whole skulls and bones), *Gazella* (very abundant, more than 300 horns), *Equus*, *Bison*, *Cervus* (3 species at least), *Antilope* (with long spiral horns), *Camelus* (jaws and foot bones), *Elephas* (*primigenius*, rare), *Hyaena*, *Lynx*, *Meles*, *Struthiolithus*.

In the cracks of the archaeological soil were found bones of *Erinaceus*, *Bat*, *Talpa*, *Lepus*, *Lagomys*, *Myospalax*, *Dipus*, *Sciurotamias* and of small Birds.

In this fauna of highly Quaternary character, the Camel and the *strepsiceros* Antilope are two unexpected features.

3. The Palaeolithic of You Fang T'eu.

Along the Chosi Tong K'eu and the Sjara Osso Gol, we found true palaeolithic hearths or workshops, and numerous implements. In the loessic mountains of N. Shensi, on the contrary, we found only a small number of the stratigraphical portion of those few specimens, we think that their discovery is a very important one.

Near You Fang T'eu (see the preceding communication), palaeolithic implements occur in the very mass of the basal conglomerate of the great loess. All of them are made of rather large and well rounded pebbles of a hard greyish quartzite. Over an area of 4 kilometers in length, we found six of them: one "disque", three scratchers, and two broken pebbles (the latter without definite shape, but bearing the marks of many heavy blows).

We have no doubt that these specimens are real implements. In N. Shensi, the basal conglomerate of the loess consists entirely of small rounded fragments of calcareous nodules washed out of the Pontian red earth. Under such conditions, and independently of the undoubted artificial shape of four of the quartzites which we collected near You Fang T'eu, it would be almost impossible to explain, except by human interference, the occurrence, in the middle of a very soft material, of isolated and sharply broken pieces of a hard and foreign stone.

The antiquity of the Palæolithic of You Fang T'eu is evidently very great,—so great that we do not know where, in the Quaternary of China, an older industry could be searched for.

Near You Fang T'eu, we found *Rhinoceros* remains up to the top of the "eolian" loess. In the basal conglomerate, teeth of *Rhinoceros*, *Bison*, and heads of *Myospalax* (caught in calcareous nodules), are not very rare.

It must be noticed, here, that, in 1920, in the course of his great excavations in the Red Earth in the North of King Yang Fou F. Licent had collected, in the basal conglomerate of the loess, two chips of grey quartzite (broken out of rounded pebbles) belonging exactly to the same general type as the implements of You Fang T'eu. In the true ("eolian") loess above, F. Licent had also collected two worked quartzites. Unfortunately, the best of these two last specimens seems have been lost but may turn up again⁽¹⁾. The palæolithic industry of You Fang T'eu (and perhaps, also, that of the Choei Tong K'eu) extended southward as far as K'ing Yang Fou seems to us highly probable

4. Other palæolithic remains in Inner Mongolia.

Beyond the three well dated palæolithic industries which we have just referred to, F. Licent and I collected, this year, in Inner Mongolia, isolated stone implements lying on ground but so much identical with the implements dug out of the Choei Tong K'eu that we believe them to be of palæolithic age.

a) In the southern border of the Yinze Chan, exactly under the lamasery Wambara Sseu (quite close to the Graptolite-bearing beds), we collected a dozen worked quartz and quartzites (made of Stephanian pebbles), one of which is a beautiful discoidal scratcher. We think that some regular "foyers" are, or were, to be found in this place. But, we had not sufficient time for a careful research.

b) Much further to the North in the desert, in front of the San Tuo Ho mission, we found lying on the Quaternary (?) gravel which ex-

(1) The other one, a chip of quartzite pebble, was found at ten meters in the undisturbed loess and seven meters above the basal conglomerate, not far from an Elephant's tusk (this implement is kept now in the Hoang Ho-Pai Ho Museum of Tientsin).

tends over the Pliocene beds (see above), a very good scratcher and some dubious implements made of red quartzite. A small point made of a local flint, was found in the same locality, but is probably of more recent age.

Thus, along the long way leading from the San Tao Ho to K'ing Yang Fou, by Siao K'iao Pan and You Fang T'eu (that is over a distance of about 900 kilometers), the existence of a very old and archaic palæolithic industry is demonstrated. We think that almost everywhere, in the loess of China, similar implements may be easily found. But the worker himself, the Old Man of China, is still to be discovered. For this much more difficult task all the Chinese geologists must unite their best will and effort.

5. *Neolithic remains in Northern China and Inner Mongolia.*

The object of this paper is only the discussion of the Palæolithic of China. But, it is interesting to note that in the same places where the palæolithic industry lay deep under the ground, we met neolithic remains on the surface of the earth. Along the Choei Tong K'eu, along the Sjara Oso Gol, near You Fang T'eu, we found, lying on the old soil (especially under the sand dunes), numerous broken flints, polished axes, and fragments of old unpainted pottery. Near the Sjara Oso Gol, two arrow heads, two small knives, and several minute borers were found, delicately worked out of flint.

All those specimens belong probably to the Yang Shao Culture recently described by Dr. J. G. Anderason.