

## HOW AND WHERE TO SEARCH THE OLDEST MAN IN CHINA.

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During the summer of 1923, we were so lucky F. Licent and myself as to get, in three different places, the first records of the palæolithic Man in China.

Near Ning-hia-fu, in the Choei-tong-keou, many foyers were discovered, lying under twelve or more meters of loess.

Along the Sjara-osso-gol, an old inhabited soil was found, under more than 50 meters of ancient dunes and marshes.

In Northern Shensi, at last, near You-fang-t'eu, isolated worked quartzites were picked up in the basal gravels of the powerful gray loess.

In the Choei-tong-keou foyers, numerous implements occur, with few, but characteristic, bony animal remains: *Rhinoceros tichorhinus*, *Hyæna*, *Struthiolithus*.....The implements are worked out, some time of *éclats*, more often of *lames*. From a typological point of view, they recall the aurignacian, more than the monsterian, style of Europe. Geologically and paleontologically speaking, the deposits seem to be contemporary with the last occidental glaciation.

In the Sjara-osso-gol level, exceedingly small quartzites occur, mixed up with an abundant upper pleistocene fauna: *Rhinoceros tichorhinus*, *Hyæna*, *spelæa*, *Cervus* cf. *megaceros*, *Bos primigenius*, *Elephas* sp., twisted-horned Antelope etc. As a first approximation, we think that this microlithic industry belongs to the same age as the Choei-tong-keou implements. But it might be slightly older.

In You-fang-t'eu, the quartzites, worked out of *éclats*, are still held by us as belonging to the late Pleistocene times. But the hypothesis is not yet excluded that they were washed out of an older loess, of which we are going to speak later on.

No human bones were found anywhere.

So many times have we, already, related that discovery, that it would be useless to do it here again. Lantern slides will be sufficient, presently for giving you a fresh idea of the matter.—In that short communication, for which I have been so kindly asked by the pioneer of the Chinese prehistory, Dr. Andersson, I intend only to gather some remarks about the way in which our finds of 1923 have been, or might be, driven to a new extent, further around in the space, and further down in the past.

1.

In the space, that is geographically, a capital new step in our prehistorical knowledge has been made the last year when Mr. Nelson, of the Third American Asiatic Expedition, collected, in Western Gobi, palaeolithic-like implements lying on the old Mongolian soil. I am not entitled to speak of that discovery, inasmuch as I have not seen the bulk nor the best of the specimens found by Mr. Nelson. My provisional idea is only that the worked stones collected by the American Expedition are true palaeolithic remains; but, also, that by their shape, they differ in some way from my Choei-tong-keon material. In the Choei-tong-keon, implements are but exceptionnally made out of a whole single chipped pebble. In the Nelson's specimens, they seem to be often so.

Thanks to the Nelson's discovery, we keep now a firm hope that some connection will be soon established between the Ordosian and the Mongolian palaeolithic industries. In Eastern China things remain, unfortunately, much more obscure. This very year, for instance, we have, F. Licent and myself, perseveringly travelled amidst the deep and extensive loessic deposits of Northern Honan and Southern Shansi. Now, in that large and promising area, not the slightest trace of Palaeolithic has been detected by us. Such a failure is rather disappointing and puzzling. In some cases, those negative results of ours, and Dr. Andersson's researches in true China might be attributed, either to the huge masse of the loess, in which human remains must be as difficult to be found as a needle in a hayrick,—either to some alluvial, more than subaerial, facies of the loess. But, in many other cases, those explanations have no place; and we cannot well understand why stony implements, if they were there, could not be found as easily as fragments of *Struthiolithus*.

I suppose, for my own part, that a partial explanation of the difficulty we meet with, when we try to extend eastwards the Ordosian and Mongolian palæolithic discoveries, has to be searched in the two following facts: first, the peculiar type of erosion, and, secondly, the lack of good siliceous material, in Eastern-China.

In Eastern-China, first, Pleistocene deposits are highly dissected by water; but they are not weathered, "evaporated", by the wind, as in western deserts. Vertical, not horizontal, exposures occur. The consequence is that stony implements when washed out, are probably immediately buried again in redeposited loess,—not spread over any open broad area in which we could easily notice them. In that unfavourable case, the best equivalent of an open desertic field is the basal gravel of each new loessic formation, in which the whole of the hard material formerly scattered in the precedent, destroyed, deposits, are now concentrated. We wish to recommend strongly, here, that practical way of palæolithic hunting. In order to discover stony implements in the loess of China, that is, of course, a first and excellent method to look, in every tranche of pulverulent yellow earth, for every hard stone projecting out of the cliff. But it will be still more effective to trace carefully those places in which the loessic stuff overlies a basal gravel, made out, not of large stony remains, but of the peculiar, soft, material (calcareous nodules, chiefly) washed out from earlier loessic beds. Such gravels (we have again experienced it recently) are the very place for collecting human artefacts of any sort.

Now, in order that implements could be easily found, even in a basal gravel, we must evidently suppose that palæolithic Man worked out a large number of stones in a characteristic and permanent way. But, where are, in Eastern-China, stones well fitted, not for refined arrow heads or microlithic blades, but for heavy scrapers, scratchers or points? Sinian quartzites are very poor in that way, not much better than a sandstone. Sinian chert forms only irregular or breaky layers. Chalcedony is small and rare. I feel that if, in England or in France, too much of flint in the rocks induces sometimes the prehistorians to see the Man where he has never been, here, in China, on the contrary, no flint, and insufficient quartzite prevent us

to perceive the Man where he really was. Had these been flint, in China, palæolithic culture would probably appear, not only as a much more widespread, but also as a much older one.<sup>1</sup>

## 2.

Up to now, we have dealt only with our success or failures in the geographical widening of our palæolithic data since 1923. Now, what about their extension down in the past?—We are sure that, during the last occidental icetimes, Man lived in Mongolia. But, what, during the earlier, warmer, times?

Here, an indirect, but capital progress has been recently made. Two years ago, we suspected scarcely where to search for the "Chellean" Man in China. To day, as a consequence of an already old discovery of Dr. V. K. Ting and Dr. Andersson, enlarged by Mr. Barbour and F. Licent, we know it. For, under the classical yellow earth of China (I mean the loess with *Rhinoceros tichorhinus* and *Bos primigenius*), we are able, now, to trace an older Pleistocene formation, the San-Mên or Sangkan-ho series, which seems to correspond exactly with the warm Quaternary of European countries.

Along the Yellow River, where it was originally discovered by Dr. Ting, the San-Mên series consists chiefly of sands, containing a large Livalve (*Quadrula*) almost restricted, actually, to the Yang-tze basin. But, up to now, no characteristic mammals have been found there. Fortunately, in the beautiful Sangkan-ho basin, near Kalgan, for the first exploration of which we are indebted to Barbour and Licent (1924), an extremely rich vertebralian fauna has been collected by F. Licent in the two past years, and this summer again. Now, the character of that fauna is wonderfully transitional between the true loessic (as found in the Sjava-osso-gol) and the Pliocene faunas. In the same levels, a large Horse, a small Bison, a megaceroid Deer, true *Siphneus*, *Gazella* and Munjack, and perhaps *Rhinoceros tichorhinus* itself, occur with a large twisted-horned Antelope, a peculiar *Rhinoceros*, a curious fox (already described from the Hipparion-beds), a *Machairodus*, and even a *Chalicotherium*!

1. In the great loess of Northern Shensi and Eastern Kansu, between K'ing-yang-fu et Yü-lin-fu, Palæolithic implements are made only with the pebbles (no larger than an egg) of a same, very hard, quartzite,—as if the Man did not find any other workable material in the country.

On account of their torrential or lacustrine facies, the Sangkan-ho ceds are not the proper site for searching foyers, nor even stony implements. But we think that there is not actually a better place known in China where could be discovered, with a greater stratigraphical security, an isolated human femur or jaw.

As a last step in our knowledge of the old Pleistocene deposits in China, we begin to follow actually the San-Mên or Sangkan-ho series deposits from the depressed basins up to the hilly parts of the land. Here, the muddish, sandy or torrential beds seem to pass into some subaerial, reddish, loess-like deposits, in which many calcareous nodules, occasionally containing heads of fossorial Rodents, occur as a characteristic feature. That peculiar, lower, loess is everywhere, overlaid by the common, upper loess, and sometimes completely destroyed by it. In Northern Shensi for instance, the basal gravels of the great loess (in which the palæolithic implements are imbedded) are almost entirely formed by the remains of its disintegration.

Evidently, the older, reddish loess, would be the right place for the discovery of some implements of foyers left by an old-Pleistocene Man. Unfortunately, its exposures are very rare, and, in many cases, uneasy to recognise with a full stratigraphical safety. Consequently, according to the aforesaid prospecting method, the best way to discover the first traces of a "chellean" Man in China will be to inspect carefully those basal gravels of the gray loess in which the hard parts of a destroyed reddish loess have been accumulated.

Logically, I should say, perhaps, that such a discovery has already been made. Since the You-fang-t'eu quartzites have been collected in the basal gravel of the great loess, they must be held, according to my own words, as washed out of the reddish loess, they are old Palæolithic. I do not dare to go so far. In the basal gravel of You-fang-t'eu, I have noticed, amongst old Pleistocene remains, some bones or teeth which looked very slightly fossilized. I suspect, therefore, that, in basal gravels, some pieces are mixed up which are not older than, but contemporary with, the formation of the gravel itself. One must carefully remember that a find made in a gravel is much more difficult to interpret safely than if made in original situ. Nevertheless, I think

that, in the present state of our knowledge the basal conglomerate of the loess is, for the discovery of implements (as the Sangkan-ho beds for the discovery of bones) the most promising level in which we may hope to detect the oldest Man in China.

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