

REPORT ON THE EXCAVATION OF *SINANTHROPUS* SITE IN 1958

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The excavation of the *Sinanthropus* site at Choukoutien was resumed in the autumn of 1958 by the excavation team of the Institute of Vertebrate Palaeontology, Academia Sinica, and 50 students of the Archaeological Section, Department of History, Peking University also took part in it. The following results were obtained.

Stratigraphy

The stratigraphical series of the section of *Sinanthropus* site were formerly divided by Teilhard and Young (1929) into 10 layers. Based on further excavations, 3 more layers (10—11) were recognized (Text figure 1) and described as follows:

Layer 11. Fossiliferous reddish breccia, thickness about 2 meters.

Layer 12. Fossiliferous reddish sand, thickness about 2 meters.

Layer 13. Reddish mud, thinly laminated, usually containing some lens of red or grey sand. Fossils rather rare, but with a thick layer of coprolites on the upper part and one piece of stone implement made from a large flake of chert from the bottom.

In the deepest part of layer 13, a patch of conglomerate was exposed in the southwest corner of the middle section of the cave (near south fissure). After removing some large limestone blocks and loose sediments at the lowest part near the northern limestone wall, the underground water occurred. This showed that the bottom of the fossiliferous deposits was reached.

It seems to the present writer that the 13 layers can be re-organized from above downwards into three groups of strata.

Layers 1—3 = *Group C*.

The topmost layers 1—2 were yellowish loam or breccia, full of white calcified spots or concretions and contained some strongly weathered limestone fragments. The sediments of layer 3 consist of reddish breccia with angular limestone fragments. On the whole, the sediments mentioned above differ sharply from the lower groups. Its lithological characters are exactly the same as Locality 15, which is situated only about 70 meters south of the *Sinanthropus* locality. These facts lead to the conclusion that *Group C* represents Late Middle Pleistocene in geological age.

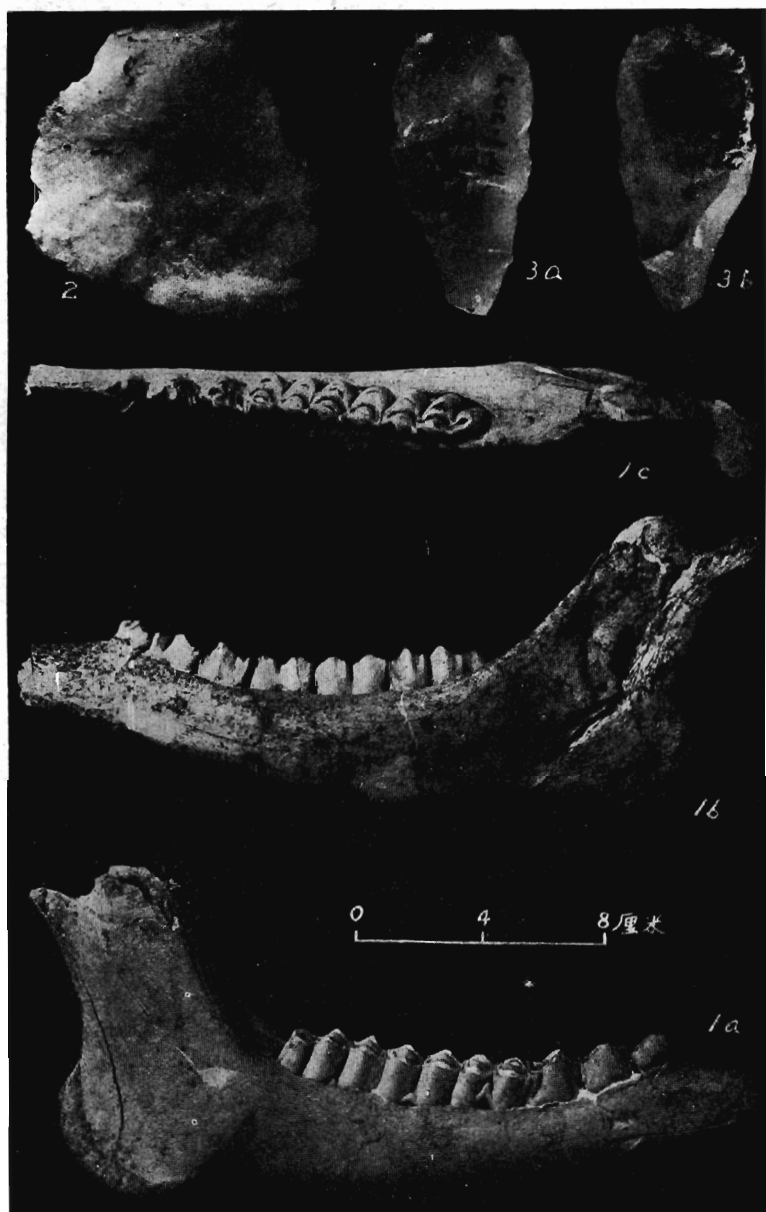


Plate II

Fig. 1. *Ewyceros flabellatus* Teilhard, right lower jaw, 3 views, $\times 1/2$.

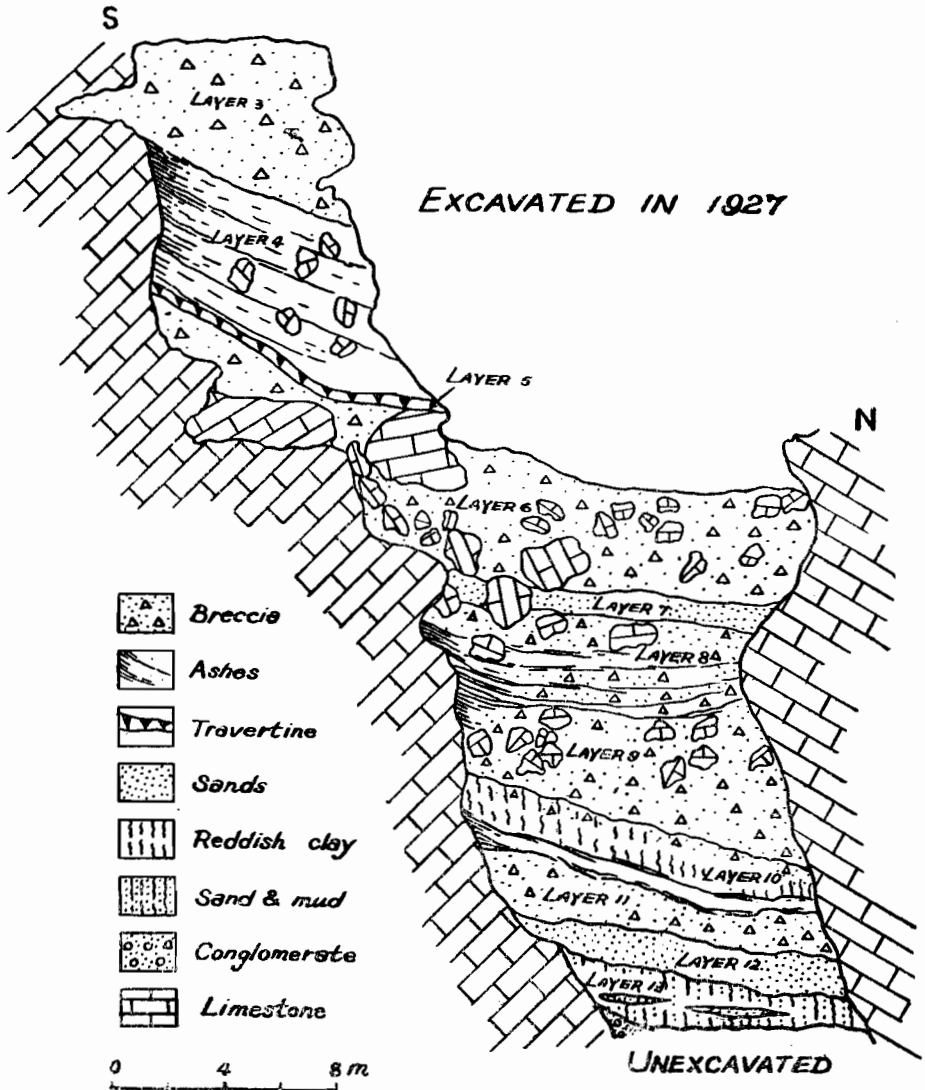
Fig. 2. Flake in vein quartz (*Specimen 1*), natural size.

Fig. 3. Flake in flint (*Specimen 2*), natural size.

Layers 4—10 = *Group B*.

Though they contain breccia and three layers of ashes, but the composition of the mammalian fauna and the artifacts from the upper to the lower are exactly the same.

Layers 11—13 = *Group A*



Text-figure 1. Transverse section through *Sinanthropus* site in North-South direction.

In the lower level of the *Sinanthropus* site, fossils are very few and without traces of ashes. Only one piece of stone implement was found.

Specially noticeable are the occurrence of the *Euryceros flabellatus* (Pl. II, Fig. 1) in the lower level and the absence of *Euryceros pachyosteus* (Young, 1932) which is especially abundant from *Group B* and upward.

Euryceros flabellatus has been found in the materials of Locality 13 (Teilhard & Pei, 1941) about 1.5 kilometers south of *Sinanthropus* locality, and is a typical Early Middle Pleistocene form. Its occurrence in the lowest level of *Sinanthropus* site indicates that the lower level is the same as Locality 13 in geological age. In this respect I agree with the opinion of Kahlke and Hu (1957).

As the stratigraphical division into 13 layers was based only on the middle section of the locality, it can not be applied to the whole of the deposit. Both the upper and lower travertine layers (upper one in Layers 1—2, and lower one equals to Layer 5) can be clearly seen in the middle section of the cave, but they extend only about 30 meters eastwards and then disappear entirely. These facts point out that the process of deposition had two interruptions. The reddish sand of Layer 12 is a large lens also, as shown by the sporadical occurrence of its existence.

In the area of our excavations in 1958, huge limestone blocks were exposed in the bottom of Layer 3 (20 meters long, 12 meters wide, 5 meters thick). On the surface of the limestone block there were two heaps of blackish ashes (about 1 meter thick). These facts indicate that this place was a dwelling place and that the *Sinanthropus* could control the fire as shown by the concentration of fire traces.

Observations on the Lithic Industry of *Sinanthropus*

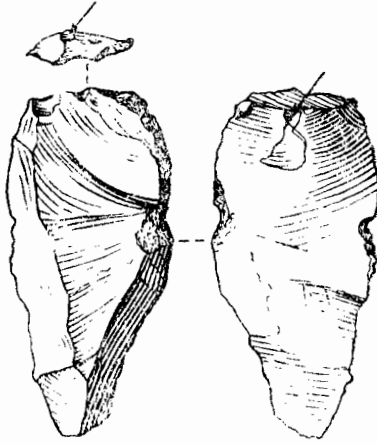
Many pieces of stone implements were collected *in situ* in deposits of *Sinanthropus* site excavated in 1958. Most of them are of common types, such as choppers and scrapers which have been found abundantly formerly. The stone implements are especially rich in Layers 8—9, and the raw materials for the making of tools are chiefly green sandstone. But they are not so abundant from Layer 6 and upward.

Three pieces of stone artifacts in our collection are of special interest.

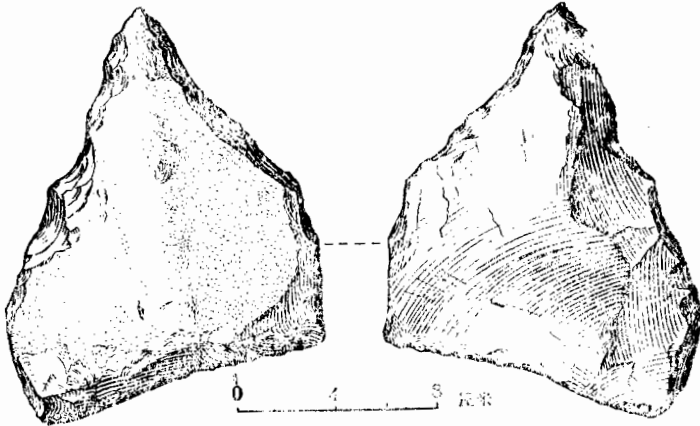
Specimens 1 & 2

Specimen 1 (Pl. II, Fig. 2) found in Layer 4 (ash layer) is a regularly shaped flake made of vein quartz. The platform and the point of percussion are clear. Its negative surface is covered with a few primary long flake scars.

Specimen 2 (Pl. II, Fig. 3) also found in layer 4, is a triangular flint flake of the most remarkable type. Although its edges have no trace of secondary retouches, it may be described to be relatively long, thin (46 mm in length, 22 mm in breadth and 6 mm in thickness) and regularly shaped. The striking platform and the bulb of percussion are very clear. The negative surface is covered with a primary flake scar. The faceted platform on which the severing blows were made, was inclined at an angle of 90° to the main flake surface.



Text-fig. 2 Flake in flint (Specimen 2), arrows indicating the point of percussion, natural size.



Text-fig. 3 Chopper in chert (Specimen 3)

From these types of flakes, we believe that the *Sinanthropus* adopted a systematic method for striking off flakes from a nucleus of suitable raw material, such as flint. And specimen 2 indicates that the *Sinanthropus* probably already knew how to prepare the platform.

Specimen 3

Only one piece of stone implement was found in the lowest level (*Group A*) of *Sinanthropus* site (Text figure 3, Pl. I & Pl. III). It was made by a big flake detached from a gravel of chert. A great part of water-worn surface of the original boulder is preserved on it. It is triangular in shape and trimmed by alternating chippings on two

edges usable for chopping. Opposite the pointed end is a plane which is the original water-worn surface and the sharp edge of this plane was prepared as a handle.

This specimen as well as that piece of worked chert discovered in Locality 13 formerly are the earliest known stone tools in China.

Mammalian fossils found from the present excavated section of the *Sinanthropus* site, on the whole, are very poor and fragmentary. It is unfortunate that no human bony remains have been discovered in this year.

References

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- [3] Teilhard de Chardin, P. and Young, C. C.: 1929. Preliminary Report on the Choukoutien Fossiliferous Deposits. *Bull. Geol. Soc. China*. 8: 273—202.
- [4] Teilhard de Chardin, P. and Pei, W. C.: 1941. The Fossil Mammals from Locality 13 of Choukoutien. *Palaont. Sin.*, New Ser. C, No. 11, Whole Ser. No. 126.
- [5] Young, C. C.: 1932. On the Artiodactyla from the *Sinanthropus* Site at Choukoutien. *Palaont. Sin.*, Ser. C. 8. Fasc. 2.

EXPLANATIONS OF PLATES

Plate I

Bottom of *Sinanthropus* site, at the time of discovery.



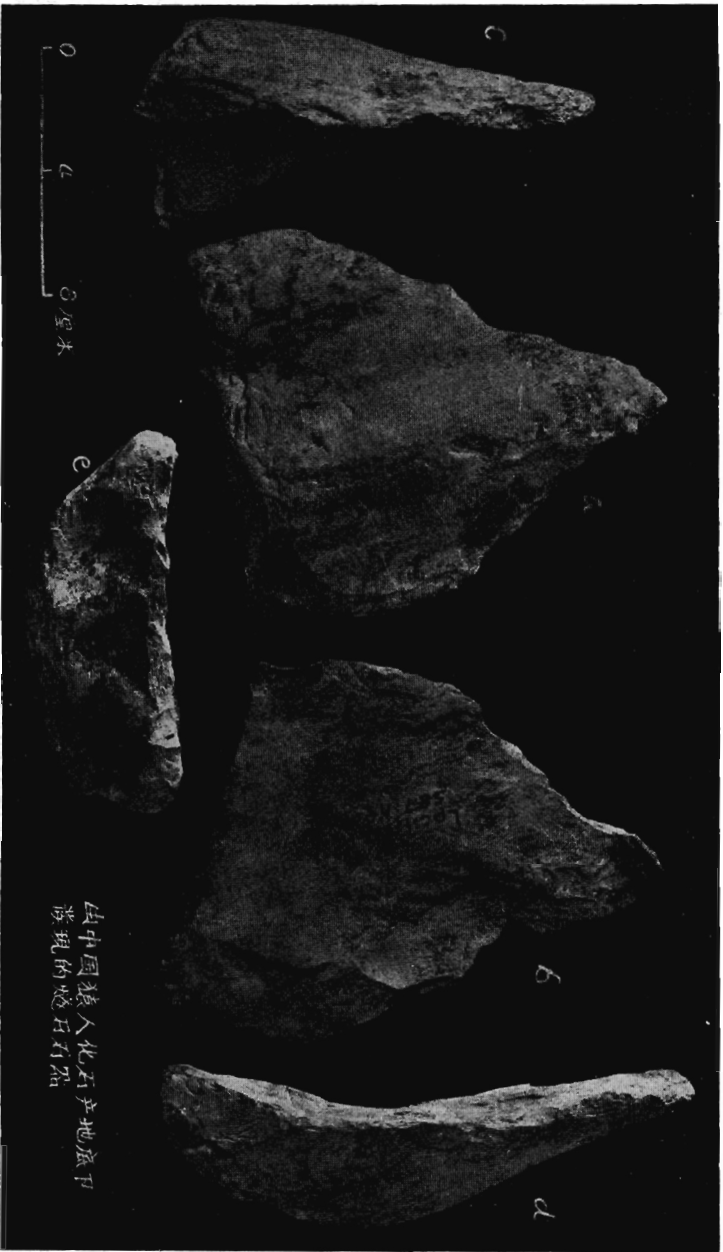


Plate III
Chopper in chert (Specimen 3), 5 views, X