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## SOME PLEISTOCENE MAMMALIAN FOSSILS FROM CHIENPING AND KONGPING, LIAONING

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The few mammalian fossils from the Upper Pleistocene deposit of Chienping and Kongping of Liaoning province, briefly described in this paper were sent to the Institute of Vertebrate Palaeontology for study in early 1957 through the courtesy of the Provincial Cultural Bureau of Liaoning. Although no data regarding the exact localities and stratigraphical occurrences of these fossils are available and the specimens are for the most part very fragmentary, it is palaeontologically quite interesting because there are remains of Pleistocene mammals in the collection which either are of very rare occurrence (such as *Spirocerus* and *Ovis ammon*) or so far has never been recorded from the Pleistocene deposits of the Manchurian region.

The mammalian species recognizable in the collection from the two districts are as follows respectively:

1. From Chienping District (western part of Liaoning):—

*Equus* cf. *przewalskyi* Poliakoff

*Equus hemionus* Pallas

*Coelodonta antiquitatis* Blumenbach

*Spirocerus* cf. *kiakhtensis* Pavlowa

*Ovis ammon* Linné

*Bison priscus* Bojanus

*Bos* sp.

2. From Kongping District (North Liaoning):—

*Mammuthus primigenius* Blumenbach

*Elaphurus menziesianus* (Sowerby).

As can be seen from the above list, the age of the mammal bearing beds from both Chiening and Kongping is Late Pleistocene characterized by such species as *Coelodonta antiquitatis*, *Mammuthus primigenius*, *Bison priscus*, etc. It belongs to the same wide districted Late Pleistocene mammalian fauna of the Manchurian region.

DESCRIPTION OF THE FOSSILS:

1. Fossils from Chienping District.

*Equus* cf. *przewalskyi* Poliakoff (Pl. I, fig. 3).

Two isolated molar teeth (V. 934.1, 934.2).

*Equus hemionus* Pallas (Pl. I, fig. 4).

An isolated molar ( $M^2$ ) of small size and without *pli caballin* (V. 935).

*Coelodonta antiquitatis* Blumenbach (Pl. I, figs. 5, 5a).

An right fourth premolar, distal segment of a humerus, and a complete radius (V. 936.1—936.3).

The radius is 340 mm long.

*Spirocerus* cf. *kiakhtensis* Pavlowa (Pl. I, fig. 2).

This is certainly the most interesting form in the mammalian faunule of Chienping. It is represented only by a single specimen, a broken skull (V. 937). The preserved part includes the cranium and the proximal part of the horn cores which are rounded in cross section and have a greatest diameter of 57 mm. The distance between the bases of cores is 38 mm and there is a prominent median ridge on the frontal region. The anterior spiral keel is shown on the left horn core. It is low, rather broad and twisting slowly outward and upward.

The structure of the skull is as a whole close to that of the form originally described by Pavlowa from the Transbaikalia region except that the size of our specimen is some what bigger than the type and those described by Boule and Teilhard de Chardin from the Sjarra-osso-gol. The occurrence of this form in the Manchurian region has been mentioned by Teilhard de Chardin and Pei (1944, p. 18).

*Ovis ammon* Linné (Pl. I, fig. 1, 1a)

Cranial region of the skull (V. 938) with great part of the both horn cores which are circular but some what triangular in cross section, with a diameter of about 153 mm and a circumfencial length of 400 mm at the base. It is distinguishable

from *Ovis shantungensis* Matsumoto from Shangtung and Nihowan by its larger and more outward extending of horn cores and the posterior part of the skull behind the bases of the horn-cores appears to be considerably short, and from *Ovis shangi* Teilhard de Chardin and Young by its stouter horn cores and its absence of the median frontal ridge and the transversal ridge between the horn cores. Therefore, the occurrence of the species in the Upper Pleistocene deposits of Manchuria extends the areal distribution of this species in the northeast.

*Bison priscus* Bojanus

Two isolated molars ( $M_2$  and  $M^1$ ) (V. 939.1, 939.2) may be referred to this species which is probably the commonest Bovidae in the Late Pleistocene fauna of northeastern China. It seems to the writers that the Chinese form which belong to this common species of bison is probably more close to the subspecies *Bison priscus longicornis* Gromove than the typical form of the species.

*Bos* sp.

Two isolated teeth (V. 940.1, 940.2) which are of much smaller size and with thinner enamel layer than the proceeding species may be referred to the form. In fact the specimens are so fresh or lightly fossilized that they may not come from the same deposits as those of the other species and belongs probably to a recent domestic cattle.

2. Fossils from Kongping District.

*Mammuthus primigenius* Blumenbach

A complete radius (600 mm long), distal fragment of a humerus, and fragment of a femur (V. 941.1—941.3).

*Elephurus menziesianus* Sowerby (Pl. I, fig. 6)

An antler represented by the distal portion of the prong I (V. 942). The large, flattened, and highly branched antler decorated with many prominent furrows and knobs are quite characteristic of this interesting cervid. An interesting point seen in this specimen is that the antler fragment was cut before it was broken at the distal end and cutting-scars evidently of human handwork are clearly seen on both sides of the specimen, besides the tip of the side tine had been sharpened by scrapping.

Our knowledge concerning the geographical and stratigraphical distribution of this species has been much widened in the recent years. Fossilized remains have been known in the Late Pleistocene deposits of Hsintsai, Honan (Pei, 1956, P. 86), Chi-tsuai Northern Anhwei (Young). Subfossils including those of complete skeletons have been found in abundance in the peat beds (Latest Pleistocene to Early Holocene) in many part of Hopei province. But, so far the occurrences of it in

the Manchurian region has never been recorded. The new find in northern Liaoning represent the northern most point of the distribution of this species in China. As the specimen are found in close association with that of *Mammuthus primigenius*, it indicates that the fossils are most probably Latest Pleistocene in age and represents the first occurrence of this species in the Manchurian region either in fossil or subfossil state. As the geographical distribution of *Elaphurus menziesianus* are ordinarily restricted more to the south their occurrence with *Mammuthus primigenius* may be probably due to the fact that they came together when the *Elaphurus* migrated toward the North while the *M. primigenius* migrated southward during the warm seasons. The same explanation can be applied to explain the occurrence of *Bubalus* in Northern Manchurian region (see Chow and Hsu, Vol. 5, No. 3 of this Journal). The same opinion was expressed by Dr. Hans D. Kahlke\* in explaining the occurrence of fossils *Bubulus* together with those of northern forms in some pleistocene deposits of Germany.

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\* Personal Communication.

## 圖版 I 說明

1. *Ovis ammon* Linné (盤羊)  
頭骨正面視,  $\times \frac{1}{3}$ . (古脊椎動物研究所編號 V. 938).
- 1a. 同上之頭骨右側面視,  $\times \frac{1}{3}$ .
2. *Spirocerus* cf. *kiakhtensis* Pavlowa (轉角羊)  
頭骨正面視,  $\times \frac{1}{2}$  (V. 937).
3. *Equus* cf. *przewalskyi* Poliakoff (蒙古野馬)  
第一上臼齒 ( $M^1$ ) 之頂面視,  $\times 1$  (V. 934.1).
4. *Equus hemionus* Pallas (野驢)  
第二上臼齒 ( $M^2$ ) 之頂面視,  $\times 1$  (V. 935).
5. *Coelodonta antiquitatis* Blumenbach (披毛犀)  
第四下前臼齒 ( $P_4$ ) 之外側面視,  $\times 1$  (V. 936.1).
- 5a. 同上之頂面視,  $\times 1$ .
6. *Elaphurus menziesianus* (Sowerby) (四不像鹿)  
鹿角之第一分枝遠端,  $\times \frac{1}{2}$  (V. 942).

## Explanation of plate I

1. *Ovis ammon* Linné,  
A fragment of skull, frontal view,  $\times \frac{1}{3}$  (V. 938).
- 1a. The same right view,  $\times \frac{1}{3}$ .
2. *Spirocerus* cf. *kiakhtensis* Pavlowa,  
A fragment of skull, frontal view,  $\times \frac{1}{2}$  (V. 937).
3. *Equus* cf. *przewalskyi* Poliakoff,  
 $M^1$ , crown view,  $\times 1$  (V. 934.1).
4. *Equus hemionus* Pallas,  
 $M^2$ , crown view,  $\times 1$  (V. 935).
5. *Coelodonta antiquitatis* Blumenbach,  
 $P_4$ , external lateral view,  $\times 1$  (V. 936.1).
- 5a. The same, crown view,  $\times 1$ .
6. *Elaphurus menziesianus* (Sowerby),  
Distal portion of prong I of antler, frontal view,  $\times \frac{1}{2}$  (V. 942).