1938

Cave and Rock-Shelter Deposits in Yunnan*

By

M. N. BIEN AND L. P. CHIA

(*Cenozoic Research Laboratory, Geological Survey of China*)

With II Plates and 12 Text-figures.

The two localities (C. L. Locs. 40 and 41) reported in this paper have all been examined previously by other geologists. Y. L. Wang visited Hoshangtung, Fumin[1] in 1930, while T. H. Yin had revisited Hoshangtung during 1934-35 and also found the rock-shelter of Heichinglungtsun, Chiupei[2]. The collection of fossils made by Wang had been studied and described by C. C. Young[3], while Yin's collection is studied together with those collected by ourselves.

In the spring of 1937 W. H. Wong, Director of the Geological Survey of China, sent us to re-investigate the fossiliferous site of Hoshangtung and actual excavation work was done there from February 24 to March 8, 1937. After L. P. Chia left Kunming for Peiping on March 20, the senior author proceeded to Chiupei which technician L. C. Tu to examine the rock-shelter deposit there from April 16 to 18.

We are deeply indebted to Mr. L. C. Ting, Director of the Bureau of Civil Affairs, and Mr. P. H. Chang, Director of the Bureau of Reconstruction of the Yunnan Provincial Government respectively; and especially Mr. M. C. Yang, Instructor in general science of the District Higher Primary School of Fumin, for facilitating and expediting the carrying on of our works at the two different localities.

---

*Received for publication in May 1938.

[1] 富民河上洞. [2] 邱北黑箐龍村.

[3] Young, C. C., On some Fossil Mammals from Yunnan. Bull. Geol. Soc. China, Vol. XI, No. 4, pp. 383-393, 1932.

On account of the characters as 1st lobe reduced and 3rd lobe elongated in P^4 and talonid of M_1 very small, the Fumin *Hyaena* is doubtless referable to *Hyaena ultima* known from Szechuan and also from several localities in North China but quite distinct from *Hyaena sinensis*, even the southern race. It recalls the question that the uncharacteristic specimens of *Hyaena sinensis* described by Koken[1] might come from some other localities than from this present one.

(6) *Felis* cf. *tigris* L.
(7) *Felis* cf. *pardus* L.
(8) *Felis* cf. *lynx* L.

III. Rodentia

(1) *Hystrix* sp.

The isolated teeth of *Hystrix* are very abundant in the cave studied. They are more than 100 in number but with the exception of two upper molars (M^2 and M^3), none of them is known to be in connection with each other. Almost every piece of fossil in the present cave has been gnawed, sometimes into very small fragments.

The teeth are very variable in size and in detailed characters, but it seems that they are all referable to the fossil *Hystrix* from Choukoutien in having a P^4 with one deep inner fold and two or more weak outer ones and in having a P_4 with one strong outer fold and two shorter inner ones.

(2) Simplicidentata indet.

IV. Perissodactyla

(1) *Rhinoceros* sp.

An interesting *Rhinoceros* is known in the Yunnan cave of Fumin by a number of isolated teeth.

DP^1—antero-inner lobe extremely small and fused with postero-inner one.

---

[1] Koken, E., Ueber fossile Säugethiere aus China. Palaeont. Abbandl. Bd. III, 1885.

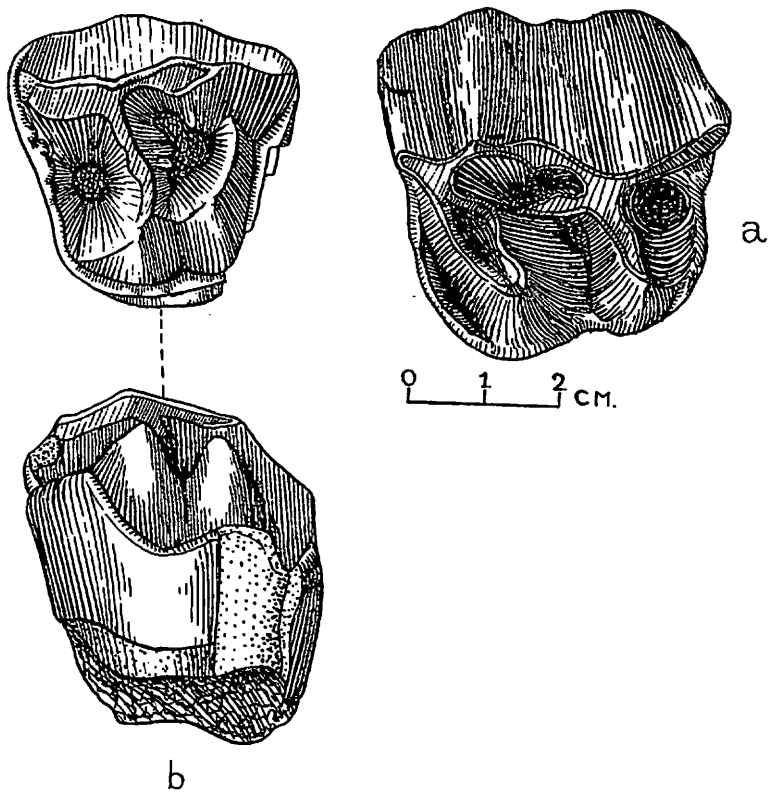

Fig. 7.—*Rhinoceros* sp. a, crown view of DP^3; b, crown and inner side views of P^2. Natural size.

DP^3 (Fig. 7, a)—with a very strong antero-outer fold; anterior cingulum very prominent; without any accessory inner pillar; two inner lobes (proto- and metaloph) rather weak and simple.

P^2 (Fig. 7, b)—with very weak outer fold, inner cingulum strongly developed, protoloph simple and isolated from both ectoloph and metaloph, when fresh; metaloph simple and without crochet.

M^1—outer fold weak; posterior cingulum rather weak; protoloph simple, with only faint furrows on both antero- and postero- inner sides; metaloph simple, with a long crochet, without any accessory inner pillar.

DP_2—represented by five specimens but of three different sizes. Characters as in common *Rhinoceros*.

Other teeth as in other forms known from Szechuan and Choukoutien.

MEASUREMENTS (in mm.)

	DP^1	DP^3	P^2	M^1	M^3	DP_2
Length	23.6	45.5	37.8	52.6	51.9	27.9-33.2
Breadth	19.0	45.1	41.8	45.8	60.0	14.9-17.5

The present form differs from *Rhinoceros oweni* Ringström (*Rhinoceros sinensis* Matthew and Granger) in having a P^2 with a strong inner cingulum and a protoloph not entirely separated from the metaloph, and in having a M^1 with a simpler metaloph and a longer crochet. If the said characters are not individual, the Yunnan *Rhinoceros* may represent another species different from that known in Szechuan. It is curious enough that by the observed characters it seems to be rather close to *Rhinoceros* cf. *merkii* found from Choukoutien. More and better material is needed for a closer study.

(2) *Tapirus* (*Megatapirus*) cf. *augustus* Matthew and Granger.

One broken P^2 (or P^3), one DP^2, one P_2 (Fig. 8, b), one M_1 (Fig. 8, c), one M_2 (Fig. 8, d) and several broken pieces of tooth indicate the presence of a species of *Tapirus* in Hoshangtung. The tooth structures are exactly the same as compared with the specimens of *Tapirus augustus* collected from Wanhsien in Szechuan. The lower molars are very large and found to be similar in size to those in one lower jaw of *Tapirus augustus*, but the broken P^2 (or P^3) is much smaller in size than the Szechuan tapir and the DP^2 (Fig. 8, a) is almost the same in size as that of *Tapirus sinensis* figured by Schlosser[1]. If the difference between *Tapirus sinensis* and *augustus* is merely a question of dimension it would be quite difficult to give a specific determination for the present specimens. It requires further studies.

[1] Schlosser, Max., Die fossilen Säugethiere Chinas nebst einer Odontographie der recenten Antilopen. Abh. d. II. Cl. d. k. Ak. d. Wiss. XXII. Bd., I. Abt., 1903.

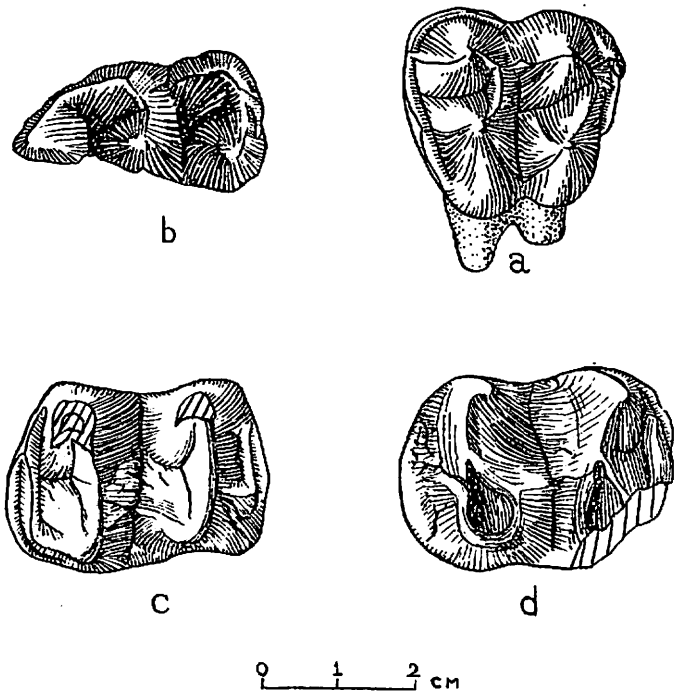

Fig. 8.—*Tapirus* (*Megatapirus*) cf. *augustus* Matthew and Granger. a, crown view of DP^2; b, crown view of P_2; c, crown view of M_1; d, crown view of M_2. All natural size.

MEASUREMENTS (in mm.)

	DP^3	P_2	M_1	M_2
Length	29.2	32.0	34.3	37.8
Breadth	28.5	19.5	24.0	26.3

V. ARTIODACTYLA

(1) *Sus* sp.

Many isolated teeth represent a form of *Sus*. Like the Kwangsi material in our collection, there are at least two abnormally elongated third lower molars (the heel: third and fourth lobes expanded very much posteriorly). It is evident that they, as well as those found in the drug stores in South China, are referable to the same form.

Bulletin

OF THE

Geological Society of China

Volume Eighteenth

PUBLISHED BY THE SOCIETY
PEHPEI, CHUNGKING,
SZECHUAN, CHINA.
1938

pp. 325 - 347.