

NOTE ON A FRAGMENTARY CARNOSAURIAN MANDIBLE FROM TURFAN, SINKIANG

YOUNG CHUNG-CHIEN and SUN AI-LING

(*Institute of Vertebrate Palaeontology, Academia Sinica*)

An anterior part of left lower jaw of a carnivorous dinosaur has been found from Ying-choe-shih some 13 kilometers S. E. of Pichan, east of the Turfan basin, Sinkiang. Although it is fragmentary preserved, it represents the first record of dinosaur found in the southern slope of the Tianshan. It confirms also the presence of Cretaceous beds in this area paleontologically. Therefore we like to give the following notes of this interesting specimen.

When the specimen was brought to the laboratory, the bone was partly embedded in the moderately hard reddish brown sandstone. Its anterior border or the symphysis and the large part behind the last preserved tooth are unfortunately broken away. After careful removal of the matrix, two deciduous and used teeth represented by the alveolus, two freshly erupted teeth and four germ teeth can be observed. The three generations of the teeth are fundamentally the same as those described by Lambe on *Gorgosaurus* (1917). Comparing our specimen with other carnivorous dinosaurs, it represents the most anterior part of the lower jaw, only the very symphyseal part being broken. The most complete tooth shows that it is lacerated in shape, curved weakly backwards, and very sharp with serrations both along the anterior and the posterior edges. The serration is rather densely arranged, about 18—26 per centimeter which is much less than the type of *Szechuanosaurus* and rather close to that of the teeth of Laiyang referred to *Szechuanosaurus*.

As convincing to the lower jaw itself, there is little to say. The preserved part is only about 155 mm long, 90 mm in maximum height. Two points seem to be interesting to note for the present jaw. First, the jaw is obviously thickening at the middle as seen clearly in the cross-section of the given figure. Secondly, the dental foramina below the tooth row are not arranged in straight line, but are jumping anteriorly and upwardly in pair almost regularly. Whether these features are of systematic value or not is waiting for further confirmation.

The size of our specimen is much smaller than both *Tyrannosaurus* and *Tarbosaurus* and rather close to *Gorgosaurus*. All the three genera are recorded recently from Mongolia by the expedition of the Paleontological Institute of Academia of Sciences USSR. In China only isolated teeth of carnivorous dinosaurs were found from Szechuan and Shantung. Those found from Szechuan were described as two genera, *Szechuanosaurus* and *Chienkosaurus* from Kuangyuan. Those found from Laiyang of Shantung were tentatively

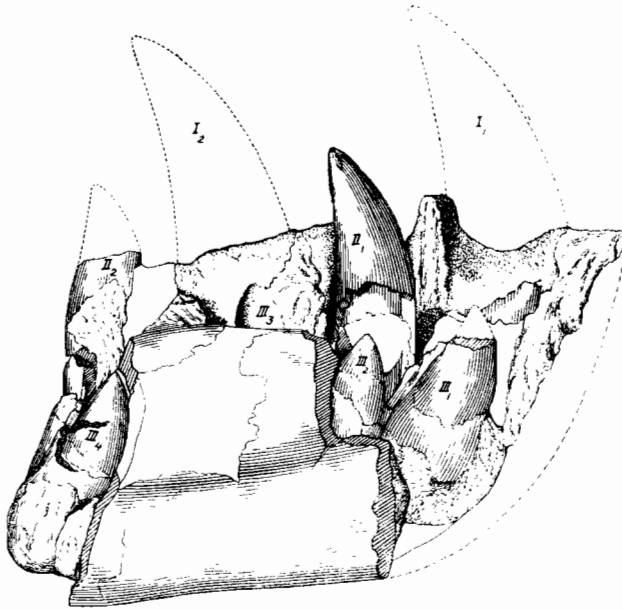


Fig. 1. cf. *Szechuanosaurus campi*. Anterior part of left lower jaw, inner view, $\frac{1}{2}$ nat. size

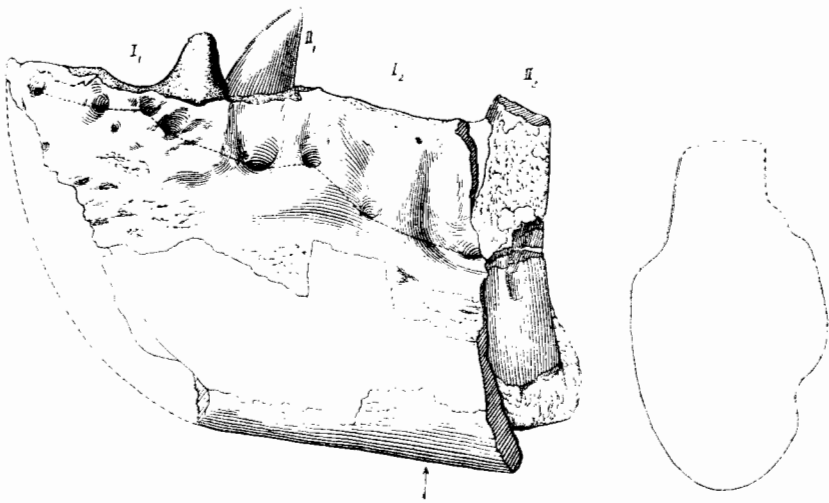


Fig. 2. cf. *Szechuanosaurus campi*. Anterior part of left lower jaw, outer view, with cross-section of the jaw, $\frac{1}{2}$ nat. size.

referred to *Szechuanosaurus*. The *Chienkosaurus* differs from the *Szechuanosaurus* not only the smaller size, straightness and bluntness but also by the much stronger inward inclination of the serration of the anterior edge of the teeth. *Prodeinodon mongoliense* and other carnivorous dinosaur from Inner Mongolia are too scant for a precise comparison. Comparing specimen by specimen of all those mentioned Chinese forms kept in our laboratory the Sinkiang specimen is doubtlessly closer to the *Szechuanosaurus*. We thus refer our specimen as cf. *Szechuanosaurus campi*. (V, 903 L. V. P.).

The geological range of *Szechuanosaurus campi* has not been certified yet, but there is no reason to consider that *Szechuanosaurus* may not be occurred in Cretaceous. View from the similarity of the teeth between cf. *Szechuanosaurus* and *Gorgosaurus* and from the fact that *Szechuanosaurus* teeth also occur in Laiyang, Shantung, we may consider the Sinkiang specimen is of the Cretaceous.

The age of the red series that the dinosaurian lower jaw was found was for long time a matter of debate as Cretaceous or Early Tertiary in age. Through the present discovery, we are glad to afford the first paleontological proof of the presence of Cretaceous beds in the south slope of Tianshan.

REFERENCES

- Black, D., Fallis, E., Cardin, Young, C. C., and Pei, W. C., 1933, Fossil Man In China, *Mem. Geol. Surv. China*, Ser. A, No. 11.
- Lambe, L. M., 1917, The Cretaceous Theropodous Dinosaur *Gorgosaurus*, *Geol. Surv. Canada, Dept. Mines Mem.* 30, No. 83, Geol. Ser. p. 5.
- Osborn, H. F., 1912, Crania of *Tyrannosaurus* and *Allosaurus*, *Mem. Amer. Mus. Nat. Hist. New York*, vol. 1, Part. 1, pp. 1—30.
- Young, C. C., 1942, Fossil Vertebrates from Kuangyuan, N. Szechuan, China, *Bull. Geol. Soc. China*, vol. 22, Nos. 3—4, pp. 293—309.
- Малеев, Е. А. 1955, Гигантские Хищные Динозавры Монголии. *Док. Акад. наук СССР*, том 104, № 4, pp. 634—637.
- Малеев, Е. А. 1955, Новые Хищные Динозавры из Верхнего Мела Монголии. *Док. Акад. наук СССР*, том 104, № 5, pp. 779—782.

新疆吐魯番肉食恐龍下顎的發現

楊鍾健 孫夔麟

(中國科學院古脊椎動物研究所)

1955年9月,地質部孢子花粉室姜宴濱、劉樹仙同志在新疆吐魯番盆地鄯善東南25里的鶯嘴石,找到肉食恐龍下牙床一塊。標本雖然很破碎,但為天山南麓恐龍化石的首次發現,故有必要作一記載。

根據姜宴濱同志供給的鶯嘴石剖面看來,化石產自下吐魯番統,標本被埋藏在紅褐色的硬砂岩中。經修理後,露出部分代表一左下顎的前端,下顎縫合處已破裂,上有兩個由齒槽所

表示的用過已脫落的牙齒；二個剛出露牙床的牙齒和四個尚未成長的乳齒。牙齒的這一種替換方式與 Lambe (1917) 描述 *Gorgosaurus* 者同。

牙齒呈尖銳的馬刀形，稍向後彎曲，前後緣均有鋸齒，鋸齒數為 18—26/厘米。下頰中部膨大，如圖 2 所示；外側齒列下的齒骨孔排列不是成一直線而為階梯狀的向前向上昇。這兩點是否有分類上的價值，尙有待以後證實。

吐魯番標本與 *Tyrannosaurus*, *Tarbosaurus* 比較起來要小得多，在大小上與 *Gorgosaurus* 倒相似。這三屬均為蘇聯科學院古生物所蒙古考察隊在蒙古所發現並有初步記載。在中國過去只發現過肉食龍的零星牙齒。四川龍 (*Szechuanosaurus*) 和劍閣龍 (*Chien-kosaurus*) 發現於四川廣元。山東萊陽上白堊紀地層中發現的肉食龍牙齒也可能屬於四川龍。劍閣龍與四川龍之區別在於前者牙較直，較不尖銳，同時前側鋸齒緣更向內側彎曲。在內蒙發現的 *Prodeinodon* 等材料均很破碎，無法比較。顯然我們的標本與四川龍相似，故名之為 cf. *Szechuanosaurus campi* (古脊室編號 V. 903)。

四川龍的正型標本的時代雖為上侏羅紀，但萊陽的標本為上白堊紀，同時這一類牙齒與 *Gorgosaurus* 的很相似，後者與 *Tyrannosaurus* 等均為上白堊紀的種屬，故我們可以把新疆吐魯番的 cf. *Szechuanosaurus* 的時代列為白堊紀。但更進一步的確定尙待今後新材料的補充。

Explanation of plate

cf. *Szechuanosaurus campi* (V. 903. L. V. P.)

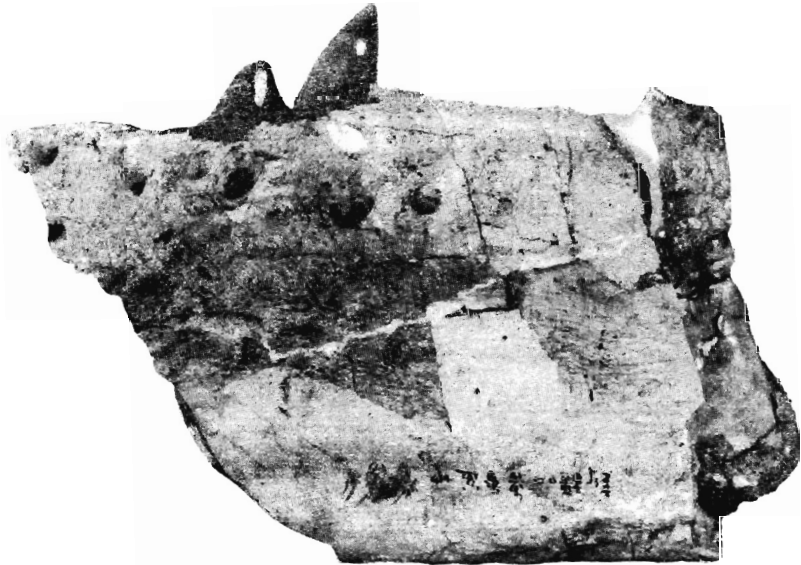
Fig. 1. Anterior part of left lower jaw, inner view, 2/3 Nat. Size.

Fig. 2. Anterior part of left lower jaw, outer view, 2/3 Nat. Size.

Young and Sun : *Carnosaurian* Mandible from Turfan, Sinkiang.



1



2