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山西犀類化石報告

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雲鑄譯

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中國山西新發見之犀類化石

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當一九一七年吾人與中國地質調查所立有契約、共同採集及研究中國哺乳類動物化石數年、成績卓著、丁文江所長對於原定計畫、仍願繼續辦理。此類化石又承瑞典愛勃塞來大學威曼 Wiman 教授代爲鑒定。經費則由瑞典政府供給、及由瑞典私人捐助、此類化石經鑒定後、皆歸中國地質調查所出版、短篇論說則刊入彙報、長篇地質論文則列入專報、（如中國北部新生界）長篇古生物著作、則歸入中國古生物誌。標本以一半分贈瑞典愛勃塞來古生物標本室、一半留置中國地質調查所陳列館。

就近年採集所得新發見之種類甚夥、且關於形態學上頗饒興趣、其最著者爲長鼻犀科 Chalicotheroidea 之一種、即麒麟 Chilinotherium 是也。中國古多麒麟、稱爲獸中之聖、據章鴻釗氏研究之結果、麒麟亦即葛來夫 Giraffe 嗣又經威曼教授之研究、遂名其種曰 Tingi、係贈與丁所長之榮譽、吾人頗希望威曼教授寄來論文、俾得早日出版、

最近其弟子林斯頓君寄來新發見之犀類化石論文一篇、此種犀類動物、與板齒犀 Elasmotherium 相類、經林斯頓氏定爲巨齒犀 Sinotherium lagrelii、以種名贈與瑞典來格雷烏君 Mr. A. Lagrelius、來君係贊助此項經費之最熟心者。

北京一九二二年安特生

年來安特生博士對於採集中國哺乳動物化石頗爲熱心、最近發見新種犀類臼齒一枚、余定爲巨齒犀 Sinotherium lagrelii。此種化石係近左下顎之第三臼齒、損壞已過半、齒根及原齒 Protocone 均破碎、齒長

一〇、五種、（由外緣量）外部齒冠 Crown 高九糎、最寬處六糎、此類動物較板齒犀尤大、然二者極可比較。（見伯蘭特 Brandt 氏板齒犀屬頭殼構造概論）齒殼 Enamel 紆曲、凹處均充填膠灰 Cement、是其特徵。其外邊蓋以膠灰薄層、擘面中間膠灰頗不發達、每成三角形淺穴、否則其構造幾與標式犀類 Typical 無異。外緣 Ectoloph 直、冠脊 Crista 脊 Crochet 反前脊 Antecrochet 均發達、原齒大且收縮、無齒盤 Cingulum 僅存其遺跡於外緣 Ectoloph 及中緣 Metaloph 之間、狀似圓錐。板齒犀與巨齒犀同隸犀科、不過前者之齒較後者稍爲進化、齒殼紆曲則一也、惟巨齒犀齒殼紆曲僅限於前緣 Protoloph 及外緣中部、板齒犀則全齒皆然、此即二者之區別。就此兩種生產地質年代證明之亦頗相合、如板齒犀生長於洪積統、今此齒則發見於山西保德縣中新統上部 Early Miocene 或上新統下部 Late miocene 地層中、是層每含有高原動物、如古馬麒麟（卽長頸鹿）羚羊之屬。齒窩 Fossettes 每爲膠灰所充滿、原齒突起且縮小、亦爲巨齒犀與板齒犀相似之點、巨齒犀雖較進化、然實保存標式犀類臼齒性質、具有顯明齒根 Roots、故余置巨齒犀 Sinotherium legrelii 于板齒犀附科中。（此科昔有兩種皆屬第四紀）雖此次發見之齒構造與短足犀 Teleoceine 及原犀 Aceratheres 均有相似之點、然對於板齒犀原始問題及置板齒犀于奧斯朋氏 Osborn 所分之六種犀類中、尤未十分充當。奧斯朋謂原犀 Aceratherium incisivum 有前角、並推測板齒犀或由此進化而來、惟板齒犀科動物在上新統初葉已甚進化且巨大、似此問題、豈易解決。予意與其視板齒犀爲原犀之分支、毋寧謂爲同一祖先之爲愈也。

constricted off. The cingulum has completely disappeared with the exception of a small residuum (c in the figure) between the ectoloph and metaloph, which has the shape of a conic style. As already mentioned, *Elasmotherium* and *Sinotherium* occupy, with regard to size, a special position within the family RHINOCEROTIDÆ, and it seems likely that in *Sinotherium lagrelii* we may have found a less specialized form, belonging to the same phylum as *Elasmotherium*. One further resemblance to *Elasmotherium* is found in the characteristic folding of the enamel. In *Sinotherium* the folds are confined to the protoloph and the middle part of the ectoloph, while in *Elasmotherium* the enamel of the entire tooth is folded. This is however, only a difference in degree, which agrees well with the geological succession of these two animals; *Elasmotherium* lived during the Pleistocene, while the tooth in question comes from the early Pliocene or late Miocene deposits in Pao-Te-Chou, in the province of Shansi, a deposit which contains a typical *steppe fauna* e. g. hipparions, giraffes and antelopes. Further resemblances to *Elasmotherium* are seen in the facts, that the 'fossettes' are filled with cement, and that the protocone is strongly constricted and prominent. Contrary to what is seen in *Elasmotherium*, this tooth, although strongly specialized, still retains the typical appearance of a Rhinoceros molar, and has, like that, distinct roots. Supported by the above-mentioned resemblances, I do not hesitate to place *Sinotherium lagrelii* within the subfamily ELASMOTHERIINÆ, which formerly included only two species, both from the Quaternary period. I consider it premature, with the material in hand, to attempt to solve the riddle of the origin of *Elasmotherium*, or to connect the ELASMOTHERIINÆ, with any of the other six Rhinoceros phyla, arranged by Osborn[1]. Still, certain details in the tooth do remind one of the 'Teleocerine' rhinoceroses and of some aceratheres. Osborn[2] has shown that *Aceratherium incisivum* has a frontal horn, and suggests that *Elasmotherium* may possibly originate from that or some similar form. I do not consider that the tooth here described supports such a conclusion, for it shows that the members of the ELASMOTHERIINÆ were strongly specialized, and had already reached a huge size during the early Pliocene. It seems thus more probable that both these Rhinoceros phyla originated from some common ancestral type of the early Tertiary period, rather than that the ELASMOTHERIINÆ represent a side-branch of the ACERATHERIINÆ.

1) Osborn, H. F., Phylogeny of the Rhinoceroses of Europe. *Bull. Am. Mus. Nat. Hist.* Vol. XIII. 1900.

2) Osborn, H. F., Frontal Horn on *Aceratherium incisivum*. Relation of the Type to *Elasmotherium*. SCIENCE, n. s. Vol. IX. Feb. 1899.

Among the fossil mammals, that have been collected in China during the last few years by Dr. J. G. Andersson, there has lately been found a Rhinoceros tooth of gigantic dimensions, belonging to a new form, which I propose to name *Sinotherium lagrelii* Ringström. The specimen consists of the third molar from the left maxilla, and is about half worn down. It is somewhat damaged, the roots and the upper part of the protocone being broken off. The length of the tooth, measured along the ectoloph, is 10.5 cm., the height of the crown on the outer side is about 9 cm., and the greatest width 6 cm. It must thus have belonged to an animal of unusual dimensions, closely comparable with *Elasmotherium*§; though probably larger than that animal. The most conspicuous characteristic of the tooth is the sinuous folding of the enamel, and the filling up with cement. The outsides too, are covered by a thin layer of cement. In the middle of the grinding surface the cement is less strongly developed, whereby a triangular shallow cavity arises. Otherwise the tooth is built according to the typical pattern of the *Rhinocerotides*.

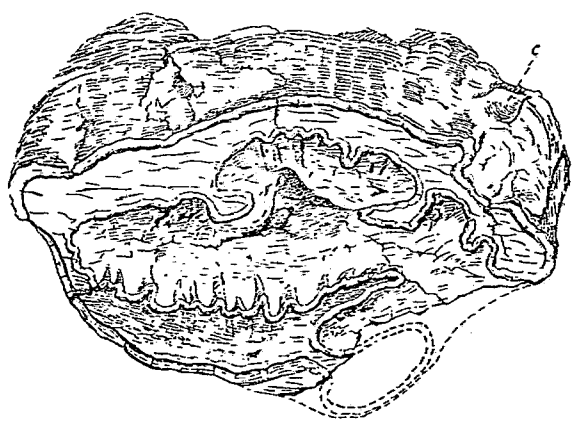

Fig. 1. *Sinotherium lagrelii*.
Third molar of left maxilla. Nat. size. c. Rest of cingulum.

The ectoloph is nearly straight, with no trace of the parastyle, 'crista', 'crochet' and 'antecrochet' are well developed; the protocone is large, and strongly

§ Brandt, J. F., "Mittheilungen über die Gattung *Elasmotherium*, besonders den Schädelbau derselben." *Mem. Ac. Imp. Sci. St. Petersbourg, Ser.* VII; Vol. XXVI 1878.

SINOTHERIUM LAGRELII RINGSTRÖM.
A NEW FOSSIL RHINOCEROTID FROM SHANSI, CHINA.

By

T. J. Ringström, Uppsala.

In 1917 the undersigned commenced, in coöperation with the Geological Survey of China, a systematic search for fossil mammals, and already in the following year the work had met with so much success that he could, together with Dr. V. K. Ting, the Director of the Geological Survey, work out a definite plan for the continuation of the work.

We secured the able coöperation of Professor C. Wiman of the University of Uppsala, Sweden, for the scientific preparation and description of the rapidly growing material, and the necessary funds for an extensive collecting campaign were obtained partly from contributions by private Swedish donators (who have been awarded special honors by the Chinese Government) and partly by a Swedish Government grant.

It has been arranged between Dr. Ting and the Swedish authorities that the material will be divided between the Palæontological Museum of Uppsala and the Geological Museum in Peking. All the material will be described in the publications of the Geological Survey of China, small preliminary papers in the Bulletin, larger geological papers like my "Essays on the Cenozoic of Northern China" in the Memoirs and the full palæontological monographs in the *Palæontologia Sinica*.

Among the material thus collected, there are a number of new types which have considerable morphological interest.

The first of these new types, recognized as such by Professor Wiman, was a remarkable member of the *Giraffidæ* which has been named by him *Chilinotherium*, the name being derived from the Chinese allegorical animal the *Chilin*, which according to the recent researches of Mr. H. T. Chang is probably an anatomical composition with the giraffe as a model.

The *Chilinotherium* has been given the specific name *Ch. tingi* in honour of Dr. V. K. Ting, the Director of the Geological Survey, who has not only supported our fossil collecting campaign most actively, but has also planned and brought into being the *Palæontologia Sinica*, which is intended to contain, as far as possible, descriptions of all the fossils of China.

We hope soon to receive from Professor Wiman for publication a preliminary description of the *Chilinotherium tingi*.

In the meantime one of Dr. Wiman's pupils, Mr. T. J. Ringström, has sent us the following interesting note on a new member of the Rhinocerotidæ, this form presenting interesting relationships to the isolated and remarkable *Elasmotherium*. This new Rhinocerotid has been named *Sinotherium* by Mr. Ringström with the specific name *S. lagrelii* in honour of Mr. A. Lagrelius of Stockholm, who with tireless enthusiasm has financially supported our collecting campaign from its inception.

Peking in May 1922.

J. G. Andersson

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SINOTHERIUM LAGRELII,

A NEW FOSSIL RHINOCEROTID FROM SHANSI.

BY

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