

陕西蓝田—始新世狐猴类*

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中国科学院古脊椎动物与古人类研究所蓝田工作队,最近在蓝田发现中国猿人下颌骨化石的“红色土”层下面的下第三系中,采集了一个灵长类的上颌骨化石。化石地点在蓝田泄湖公社陈家窝村附近的康沟湾。据黄万波等同志的野外记录,化石拾自一个山坡上,但从上面粘结的岩屑的性质,可以知道它来自下第三系中的巧克力色粘土夹层。这层薄粘土层的上面是红色砂和砂质粘土,下面是白色砂岩。这里的早第三纪地层的时代尚未十分确定。新发现的灵长类化石的时代,最可能是晚始新世。这个灵长类化石,因材料不多,它的分类位置,还不能完全确定,但显然代表一种属于狐猴类(Lemuroids)的原猴类(Prosimii)。这个标本还是我国第一次发现的比较可靠的狐猴类的化石。我国现知的另外两种始新世原猴类(黄河猴和卢氏猴),大概都是属于跗猴类(Tasioids)的。

化石记述

目 Primates

科 Adapidae (?)

蓝田猴,新属 *Lantianius*, gen. nov.

属型种 *Lantianius xiehuensis* sp. nov.

属的特征和分布 与属型种同。

泄湖蓝田猴,新种 *Lantianius xiehuensis* sp. nov.

正型标本 一完整的右上颌,带 P²—M³,古脊椎动物与古人类研究所编号: V. 2933.

地点及层位 陕西蓝田泄湖公社陈家窝子附近上始新统巧克力色粘土层。

种(和属)的特征 一种 Adapid 状的狐猴类,个体较大。P₂小,双根,齿尖尖利,向后斜,内侧尖小;P³轮廓三角形,由一个高大的外尖和一个低小的内尖组成;P⁴稍现臼齿化,外脊的顶端初步分成两个小尖;原尖大。臼齿轮廓近长方形,外侧长,内侧稍短,有显著的后小尖和不甚明显的原小尖;前附尖壮大,后附尖不明显;从 P⁴至 M² 牙齿渐次加大, M³ 后半部稍退缩。齿带在外侧很弱,内侧的强烈发育;臼齿的舌面齿带的后方有一小而明显的次尖和一个不明显的“*nannopithec* 褶皱”,下方与“次尖”连接。釉质层表面强烈褶皱。P²—M³ 长约 28 毫米。

标本描述 标本包括一段上颌骨,部分上腭骨及六个颊齿(P²—M³),牙齿保存完好,仅 M³ 后内侧 1/3 缺失;除 M¹ 外,全部牙都很少磨损。颊齿排列成向唇面微微凸起的宽

* 5月18日收到。

的弧形,在 P³ 处稍呈收缩。上颌骨,在 P² 背侧上方离齿槽边缘的 3 毫米处有一凹坑,前面开放,后端底部为眶下孔所在处;颧弓已缺失,起点的前方在第二上臼齿前沿处。颧弓基部前方到眶下孔间的部分平坦。

P²——单尖,侧扁,至少有两个牙根;外尖较高,尖利,稍向后倾斜,前后侧各有一显著的嵴棱。在内后方齿带上有一很小,但十分显著的小尖,因此使牙齿的后面显得较宽;前附尖存在,但不明显;唇面的齿带在原尖下方中断。

P³——牙齿轮廓略成三角形,较大,主要由一个高的前尖和一个位置低得多、不很大,但十分显著的、独立的“原尖”(或第二尖)组成;前附尖和后附尖,不甚发育。外侧齿带极不显著,但近于连续;内侧原尖往后部分齿带发育显著。

P⁴——成横宽的似长方形,外宽内窄,齿冠三尖式,已稍有臼齿化。外侧的主尖已分裂为二,前尖比后尖稍大,但很不显著;外壁较平坦,在前尖和后尖位置上各有一粗的外肋;原尖相当强大,与外侧的两个尖形成一封闭的齿盆;前附尖相当壮大,后附尖不显著;原小尖与后小尖基本上未发育,但已有一些痕迹。齿带在唇面不甚明显,中间稍有间断;前、后内侧齿带完全,相当发育。

从第四前臼齿往后,到第二臼齿,牙齿渐次增大,轮廓更接近梯形,构造亦趋于复杂化。上臼齿都为三尖式,外侧比内侧宽,但内侧面轮廓已趋于正方。

M¹——前尖和后尖圆锥形,尖利,大小近于相等,外侧在外壁上略成圆柱形。原尖较大,但很低,靠中,略成新月型;舌面开始现一浅的凹曲,凹的后方有一低的折棱,代表一个 *nannopithec* 褶皱状构造,向下伸入齿带与“次尖”相接。原小尖及后小尖已明显发育;后者尤其显著,有一小嵴与后尖内前方底部相联。前附尖强大,有一条嵴棱向后内方斜伸,与原尖相连接;后附尖不明显。唇面的齿带微弱;舌面的强烈发育,并在后侧角上形成一次尖式的小锥体。

M²——基本构造与 M¹ 相似,但较宽大,内侧面更趋于方形。

M³——后内侧半边已缺失,基本构造与 M² 相似,只是后端部可能稍退缩;后尖显著地较小,舌面较圆。

标本测量: (单位毫米)

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| P ² —M ³ , 长(Length) | 28.0 |
| P ⁴ —M ³ , 长(L.) | Ca 19.5 |
| P ² —P ⁴ , 长(L.) | 13.2 |
| P ² , 长(L.) | 3.8 |
| P ² , 宽(Breadth, posterior) | 2.5 |
| P ³ , 长(L.) | 5.0 |
| P ³ , 宽(B.) | 4.4 |
| P ³ , 高(Height, Pa) | Ca 3.4 |
| P ⁴ , 长(L.) | 4.2 |
| P ⁴ , 宽(B.) | 6.0 |
| M ¹ , 长(L.) | 5.0 |
| M ¹ , 宽(B.) | 6.6 |
| M ² , 长(外、内侧)(L. external and internal) | 5.4; 3.5 |

| | |
|--|-----|
| M ² ,寬(B. anterior) | 7.2 |
| M ³ ,長(估計, estimated) | 5.0 |
| M ³ ,寬(估計) | 7.0 |

比較和討論

上面記述的標本有許多性質,如臼齒低冠,三尖型,橫寬,齒尖和外脊的結構,後面兩個前臼齒的特征等都表示出它是一種原始靈長類的化石,從它的帶雙根的第二前臼齒,臼齒缺少中附尖和舌面齒帶發育程度等特點看來,不象是一種跗猴類,而是一種更接近於狐猴類的原猴類,並且從臼齒的性質比較,特別接近於 Adapidae 科的一些歐洲始新世的狐猴。但是因為沒有下頷齒,標本上也沒有保存門齒、犬齒,而且不知道是否有第一前臼齒存在,它的确切分類位置比較難於肯定。最近,西蒙斯(Simons, 1962)對歐洲古新世和始新世的部分狐猴類的材料進行了整理,並重新描述和補記了一些新的材料,發現過去蓋爾特(Weigelt, 1933)記述的兩屬德國中始新世的狐猴,都可以歸入 *Protoadapis* 屬,並屬於同一個種, *P. klatti*。這種狐猴顯然與藍田的有許多基本特點十分相象,但是兩者間仍然有幾點顯著的差別。藍田的標本的臼齒上,不但有後小尖存在,並且比前小尖強大,而德國的標本上,只有不甚發育的前小尖。此外,藍田標本的臼齒舌面齒帶比較發達,不中斷;原尖後方有一微弱的“*nannopithec* 褶皺”的萌芽,並與“齒帶次尖”在下方相接;第二臼齒只是稍呈退化。藍田猴和 *Protoadapis* 屬其他各種比較,差別較大。藍田標本的臼齒的次次要小得多,但舌面輪廓卻更成方形。與 Adapidae 科其他各屬比較,我們的標本和北美古新世晚期的 *Pelycodus* 在臼齒的基本結構上也很相似,只是後者顯然要比較原始。它的齒冠很低,齒帶很弱,個體也較小。另一方面,藍田猴的標本,在某些特征上,例如臼齒有 *nannopithec* 褶皺,前小尖十分發達,在 P²、P³ 的內外齒尖間有收口現象,都和歐洲早始新世的 *Cantius eppi* 的相同或近似。後者原先也歸屬於 *Protoadapis* 屬。最近 Simons 將它從這一屬中分出來,另訂為一新的屬,並肯定它是一種跗猴類。我們的標本比 *Cantius eppi* 大得多,有連續的和發達的內外齒帶, P² 雙根,稍較進步的 P³、P⁴,前尖和原尖不直接連結,和整個頰齒的輪廓等性質看來,顯然更接近於 Adapidae 科的狐猴類。

藍田的化石層的确切時代還無法肯定,但從目前的這種狐猴類的性質看來,可能不超過始新世晚期;因為和它相近的歐洲的各個屬的時代,都不超過晚始新世(Ludian)的早期。藍田猴的個體較大,在某些性質上似乎比較稍進步一些,但在時代上可能和歐洲的相差不多,可是顯然比較偏於晚期;因此,可以初步認為它是晚始新世。

藍田猴的化石代表亞洲第一次發現的早第三紀狐猴類。

參 考 文 獻

- 張玉萍等, 1964: 對陝西藍田新生界的初步觀察。古脊椎動物與古人類, 8(2), 134—151 頁。
 Abel, O., 1931: Die Stellung der Menschen im Rahmen der Wiebeltiere, 398 pp. Jena.
 Chow, München, 1961: A New Tarsioid Primate from the Lushi Eocene, Honan. Vertebrata Palasiatica, 5(1), pp. 1—5.
 Gazin, C. L., 1958: A review of Middle and Upper Eocene Primates of North America, Smith. Misc. Coll. 126, pp. 1—112.
 Hill, W. C. O., 1953: Primates, Comparative Anatomy and Taxonomy I. Strepsirhini Edinburgh.
 ———, 1955: Ibid. II. Haplorhini: Tarsioida. Edinburgh.

- Piveteau, J., 1957: Primates, paléontologie humain. *Traité de Paleontologie*, tom VII, Paris.
- Simons, E. L., 1962: A New Eocene Primate genus *Cantius*, and a revision of some allied European lemuroids. *Bull. Brit. Mus. (N. H.)* 7(1), pp. 1—36.
- Simpson, G. G., 1940: Studies on the Earliest Primates. *Bull. Am. Mus. Nat. Hist.*, 77, pp. 185—212.
- Teilhard de Chardin, P., 1921: Les Mammifères de l'Eocene inferieur francais et leur gisements. *Ann. Paléont.* 10, pp. 9—116.
- Weigelt, J., 1933: Neue Primaten ans der mitttleozanen (Oberluteitisch) Braunkohle des Geiseltals. *T. Nova Acta Leop. Carol. n. f.* pp. 97—156 (not seen).

A LEMUROID PRIMATE FROM THE EOCENE OF LANTIAN, SHENSI

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From the Early Tertiary sandstones and clays underlain the *Sinanthropus*-bearing reddish clays at Chen-Chia-Ou, Lantian District, Shensi (Chang et al., 1964), some mammalian fossils have recently been collected in a thin layer of intercatating chocolate-colored clays at two outcrops. One is in a ravine named Kongkouwan, from where a single specimen of mammalian upper jaw considered here as a new lemuroid primate has been recovered.

The age of the Early Tertiary beds of the Lantian District, which consist of white sandstones, buff sands and sandy clays, is not yet precisely known; but the fossil bearing horizon may be regarded as Late Eocene on basis of the fossil primate noted here.

PRIMATES

Family Adapidae (?)

Genus *Lantianius* gen. nov.

Diagnosis and Distribution As for the type species, *L. xiehuensis* sp. nov.

Lantianius xiehuensis sp. nov.*

Type A maxillary fragment with well preserved right P²-M³ (IVPP-V.2933.)

Horizon and Locality Lower Tertiary, most probably Upper Eocene. Kongkouwan section near Chen-Chia-Ou Village, Xiehu Commune, Lantian, Shensi Province.

Diagnosis An adapid-like lemuroid comparatively large in size. P² two-rooted, with diminutive internal cusp; P³ triangular, with one large external and one small internal cusp; P⁴ submolariform, ectoloph incipiently two-cusped, pr. large. Molars subquadrangular, with three main cusps, a distinct metaconule, and a rudimentary protoconule; parastyles strong, metastyles weak, and mesostyle absent. Size of teeth from P⁴ to M² progressively larger; M³ slightly reduced posteriorly. Cingulum weakly developed externally and pronounced linguallly on P⁴-M³; molars with small but distinct cingulum

* Generic and specific names referring to the two geographical names, e. g. Lantian and Xiehu.

hypocone and a trace of *nannopithec*-fold connected with hypocone at the base; enamel surface of all teeth rather strongly wrinkled. Length of P²-M³ about 28 mm.

Description Only a small portion of the palate and the maxilla is preserved. A relatively large infra-orbital located in a anteriorly open depression is seen on the maxillary bone above P². The arc of upper cheek teeth row is broadly convex labially, with a slight constriction behind P². All the teeth are well preserved, show little wearing and with the enamel surface rather strongly wrinkled.

P²—Small, transversely compressed, with large external cusp, the apex of which points slightly backward; internal cusp small, lying close to the posterointernal slope of the external cusp at its base; cingulum weakly developed and interrupted externally at the base of pa and on internal side. It is at least two-rooted.

P³—Supported by three fangs, triangular in outline and large, with a large single external cusp and a small internal cusp, which is constricted off posteriorly at the cingular shelf.

P⁴—Submolariform, differing from M¹ in being smaller in size, with more rounded internal side and without conules and hypocone; ectoloph with two cusps, which are very small, barely separated from each other, and with external ribs converging together at the base; internal cingulum pronounced.

The cheek teeth row increases progressively in size from fourth premolar to the second molar and becomes more squared up lingually; mesostyle absent on all teeth.

M¹—Subquadrangular, pa and me conical, sharply pointed, nearly equal in size; pr large, crescentic, rather mesiad located, but much lower than pa and me; on the posterior slope of pr a shallow fold indicating the presence of an incipient *nannopithec*-fold, extending downward to join the cingulum hypocone at the base; hypocone small but distinct; metaconule markedly developed, and with a ridge extending to the anterior base of me; pa hardly visible but present; external cingulum weak and rising anteriorly into a prominent parastylar cuspule; lingual cingulum strong and continuous all around.

M²—Similar to the preceding tooth in structure, except being larger and more squared up internally. This is the largest of the molar series, and seems to have relatively larger parastyle and hypocone.

M³—Posterointernal third broken off on the specimen. Similar to M²; but slightly smaller and with metacone slightly reduced.

Discussion The dental morphology of the Lantian species is clearly primate like. The scantiness of material available at present and the entirely lacking of knowledge concerning its anterior and lower dentition, renders a precise determination of the specimen rather difficult. Simons' recent paper (1962) on European lemuroids with detail new description of *Protoadapis* and some allied forms has much facilitated my study of the specimen. *Lantianius* resembles in general *Protoadapis klatti* from Middle Eocene of Germany; but it differs from the latter, based on the description and illustration of Simons, in several important points, which deserve a generic separation. The Lantian species has larger size, more prominent metaconules, continuous lingual cingula, less reduced last upper molar, and an incipient *nannopithec*-fold, which is in connection with the cingulum hypocone, and P⁴ with two-cusped ectoloph. From the type species of the genus, *P. cuvicuspidens*, the molars of the Lantian species differ in the structure of hypocone, but are similar in the development of a more prominent metaconule. In these two

respects and in more quadrangular lingual side of molars, *P. klatti* is different from the type species rather greatly. On another hand, *Lantianius* is similar to *Cantius eppi*, formerly also a protoadapid, in possessing a *nannopithec*-fold, a strongly developed paraconule and in the shape of P³. But our species is of much larger size, with continuous external and lingual cingula, and disconnected paracone and metacone. These characters are distinctly different from those of *Cantius*. Our specimen as a whole is evidently nearer to the adapids.

With the two other known Eocene prosimians of China, e.g. *Huanghoni* and *Lushius*, *Lantianius* shows but remote resemblance. These two genera are more tarsiid-like and may be related to or assignable to the omomyids, as was suggested by Simons (*op. cit.*). This seems to be more true for *Lushius*.

Lantianius, though somewhat more advanced than the better known related forms of European lemuroids, is still on an Eocene level of molar evolution. The affiliating of it with the Adapidae seems to be likely, though more materials are needed for verification.

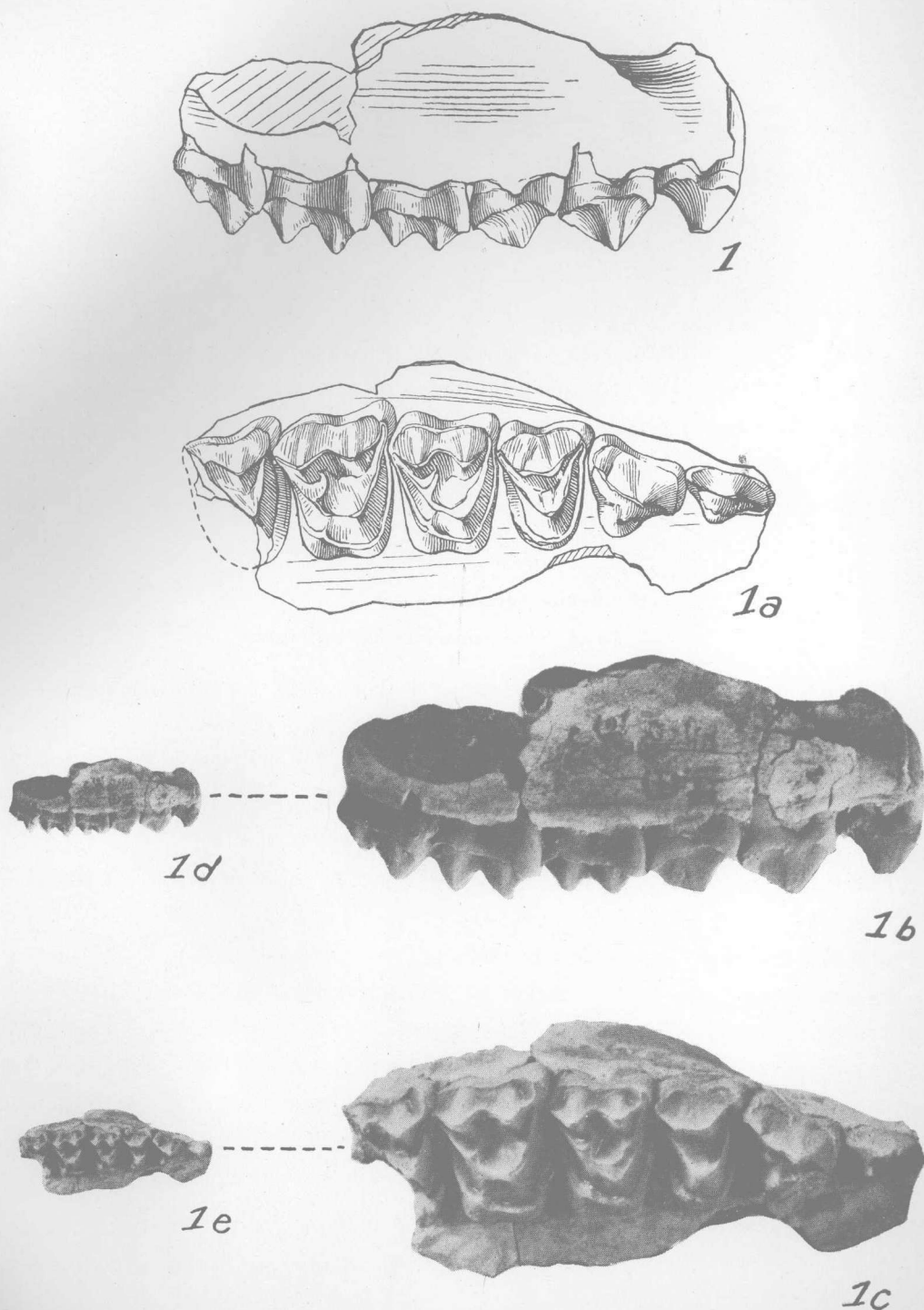


圖 1—1e. *Lantianius xiehuensis* gen. et sp. nov. (泄湖藍田猴, 新屬, 新種) 右上頤骨, 編號: V. 2933.

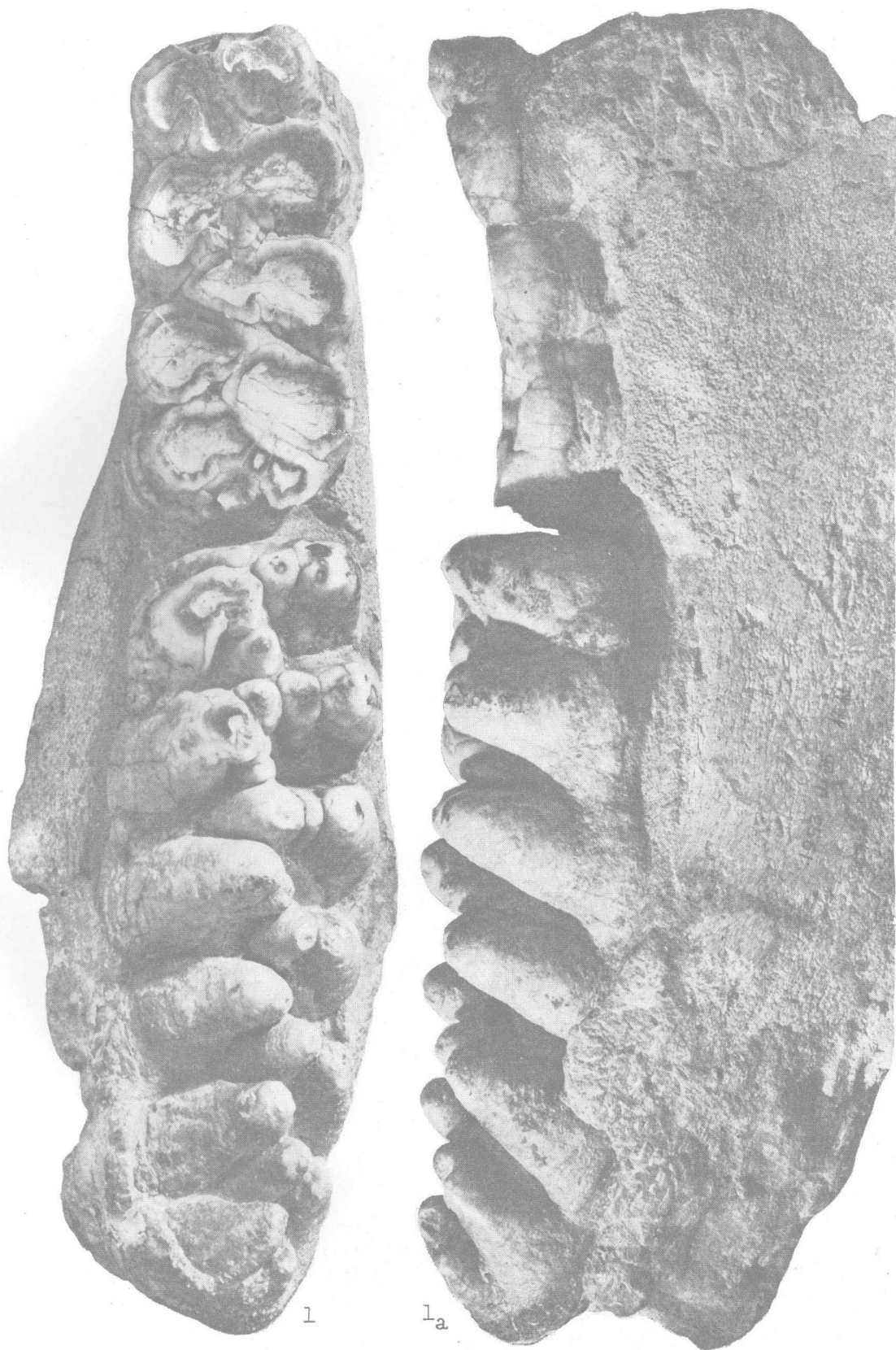
1, 1b——外側視, × 3; 1a, 1c——冠面視, × 3;

1d——外側視, × 1; 1e——冠面視, × 1。

Figs. 1-1e. Right upper maxilla of *Lantianius xiehuensis* gen. et sp. nov. Cat. No. V. 2933.

1, 1b——External view, × 3; 1a, 1c——Crown view, × 3;

1d——External view, × 1; 1e——Crown view, × 1.



1. 榆社五稜齒象 *Pentalophodon yusheensis* sp. nov.
左下頷及 M_2 , M_3 。1. 嚼面視, 1a. 內側面視。×1/2。

顱后部分骨骼已具有明显的巨犀类的特征,但整个說来,結構比較輕巧,不象已知的其它各种那样笨重。

脊椎部分的特征,在頸椎上最为明显。各个頸椎均已加长,但没有象晚期巨犀所特有的椎体内的中空現象。椎头与椎窝为圓形而不是扁圓形。肩胛骨在比例上較葛氏巨犀的长,肩峯不明显,岡結节发育。四肢骨骼修长,不象晚期巨犀中那样近于柱状,骨两端的关节部分使肢骨可以作較大角度的折曲;各种結节及隆起都較显著和粗糙。腕及跗骨較高,不象后期类型中那样趋于扁平。掌及蹠骨修长。

正型标本的一些主要部分的測量(单位:毫米)

| | |
|---|---------|
| 头骨长(Length, skull, Pmx to condyle)..... | 595(mm) |
| 上齿列长(L. I ¹ —M ³) | 310 |
| 上頰齿列长(L. P ¹ —M ³) | 215 |
| 下頰长(L. mandible) | 445 |
| 下齿列长(L. I ₁ —M ₃) | 300 |
| 下頰齿列长(L. P ₁ —M ₃) | 200 |
| 肩胛骨长(L. scapula) | 515 |
| 肱骨长(L. humerus) | 490 |
| 挠骨长(L. radius) | 610 |
| 尺骨长(L. ulna)..... | 710 |
| 股骨长(L. femur) | 605 |
| 脛骨长(L. tibia) | 590 |
| 第三蹠骨长(L. mt. III) | 265 |

比較 內蒙烏拉烏苏的始新世巨犀,在骨骼及牙齿的基本构造上已經明显地具有巨犀类的特征,但与所有过去已知的各种巨犀类比較,都較原始。身体的大小只有一般漸新世中、晚期巨犀的一半,即使和可能为漸新世早期的較小的类型(如 *Indricotherium parvum*)比較也小得多,与一般始新世的真犀类(如 *Eotrigonias*, *Prohyracodon*)比較,則已显得十分庞大了。沙拉木伦巨犀的身体大小更接近于一般漸新世犀类。但在另一方面,根据最近在亚洲新发现的一些材料,如內蒙及西伯利亚的 *Pappaceros* (Wood, H. E., 1963) 和古脊椎动物所在河南卢氏采集的一些尚未描述的标本看来,始新世真犀类已經有一些种类大小和沙拉木伦巨犀相接近了。

沙拉木伦巨犀最明显的一个特点是有完全的前部齿式,且不十分特化,和与它同时的真犀类的牙齿基本上十分相似,只是第一对門齿已有增大的趋势。在这一点上,本文作者不久前記述的烏尔丁巨犀(*Urtinotherium* 周、邱, 1963)是唯一有完全齿式的巨犀类,只是后者的第一对門齿已強烈增大,而其它門齿及犬齿則退縮。另外,前頰骨及下頰的末端并没有晚期巨犀那种向下弯曲的現象,下頰骨的前端甚至尚微微向上收斂。

沙拉木伦巨犀的头骨及顱后骨骼的构造基本上已和典型的巨犀类有許多相似之处。主要的区别是頸椎椎体沒有中空的現象,四肢骨比較修长,比較輕巧,不象后期类型中那样近于圓柱状。

总之,沙拉木伦巨犀無論在形态上或时代上,都是現知最原始的巨犀类,并且可能是

所有始新世以后的巨犀类的祖先。比较特别的是乌尔丁巨犀,它的前部齿列从 I_1 至 P_1 都比较密集,可能,乌尔丁巨犀,除第一对门齿继续增大外,其余的门齿、犬齿退缩比较不甚显著。其次,沙拉木伦巨犀的时代虽然较早(晚始新世),但是它的巨犀类的性质已十分明显,已很难看出它和其它早期犀类之间的关系了,因此,巨犀类最早的起源的时间,应该追溯到更早的年代。

参 考 文 献

- Chow Minchen et A. K. Rozhdestvensky, 1960: Exploration in Inner Mongolia. Vert. Palas., 4 (1), pp. 1—10.
- Chow Minchen et Chiu Chan-siang, 1963: New Genus of Giant Rhinoceros from Oligocene of Inner Mongolia. Vert. Palas., 7 (3), pp. 230—239.
- Granger, W. et Gregory, W. 1936: Further notes on the Gigantic extinct Rhinoceros, *Baluchitherium*, from the Oligocene of Mongolia. Bull. Amer. Mus. Nat. Hist., LXXII, art. 1.
- Wood, H. E., 1963: A Primitive Rhinoceros from the Late Eocene of Mongolia. Amer. Mus. Nov., No: 2146, pp. 1—11.
- Громова, В. И., 1959: Гигантские носороги. Тр. ПИН, LXXI.

AN EOCENE GIANT RHINOCEROS

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Among the best and most interesting mammalian materials collected by a field party of Chinese and Soviet palaeontologists in 1959 from the Shara Muren Eocene at the type locality at Ula Usu in Inner Mongolia (Chow and Rozhdestvensky, 1960) is a nearly complete skeleton of giant rhinoceros. These fossils represent a new form of giant rhinoceros evidently more primitive than any of the previously known members of this group, which are all of Oligocene or Early Miocene age. The present paper is a preliminary note of these fossils.

Genus *Juxia** gen. nov.

Type species *J. sharamurenense* sp. nov.

Known distribution and Diagnosis as for the type species.

Juxia sharamurenense sp. nov.

Type An essentially complete and well preserved skeleton, skull slightly distorted (Field No. SS 04104; IVPP, Cat. No. V.2891).

Referred specimens An incomplete skull and mandible (SS 04103₁₋₂); a broken young skull (SS 04084; V.2892); a pair of upper jaw fragments with M^1 — M^3 (SS 04000; V.2893); and other miscellaneous bones.

Locality and Horizon Ula Usu, Shara Muren district, Inner Mongolia. Upper Eocene Shara Muren Formation, in greenish and brownish clays.

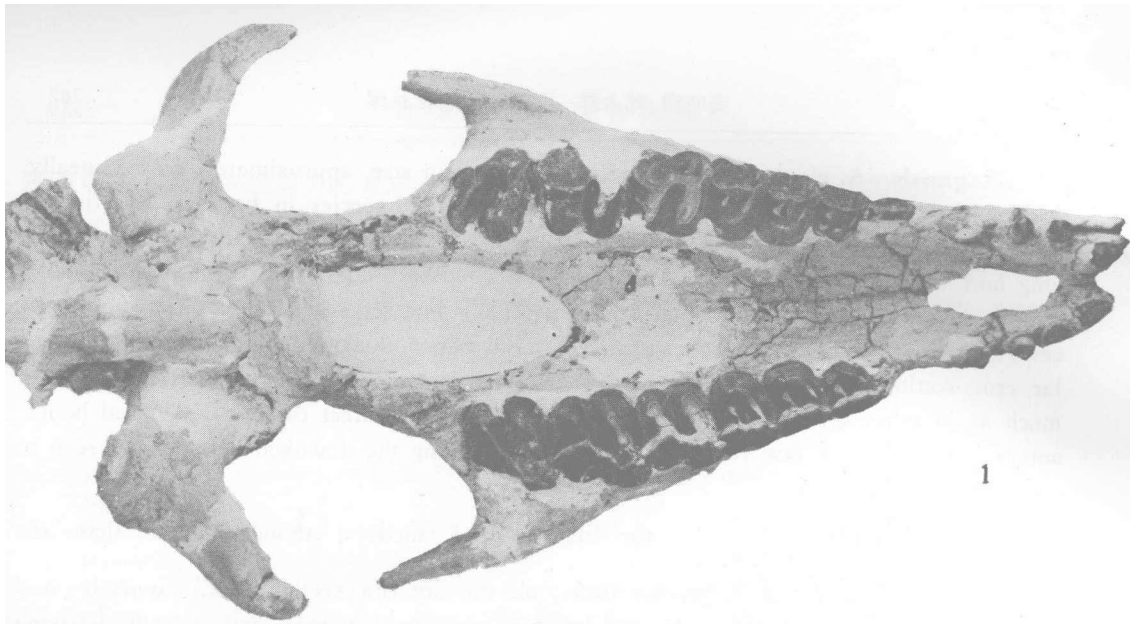
* Ju-xi, giant rhinoceros in latinized Chinese.

Diagnosis A giant rhinoceros relatively small in size, approximately 50%, lineally, that of *Indricotherium grangeri*, and much like the latter species in basic construction of skull, mandible and upper and lower cheek teeth. Skull dolichocephalic, cranial region long and with a distinct sagittal crest; occipital condyles high; paroccipital and post-tympanic processes united into one broad "process", but separated from postglenoid process; frontal region broadly convex upward, nasal bones elongated, with inverted triangular cross-section and tapering anteriorly, and deeply notched at the sides, but not so much as in other species. Premaxillae do not come into direct contact with nasal bones; anterior tip of upper jaw relatively slender and lacking the downward bending as seen in other species.

Dental formula, $\frac{3.1.4.3.}{3.1.4.3.}$; the first pair of incisors, though larger than the others, not much enlarged to become tusks; all the anterior teeth (I—C) sparsely and more or less equally spaced with gaps between one and another and a long diastema between the canine and the first premolar. Symphysis of mandible short, terminating at P_1 posteriorly.

Postcranial skeleton decidedly *Indricotherium*-like, except being slender and more lightly built. Cervical vertebrae elongated, but with solid centra; scapula proportionately much longer, with metacromion, acromion indistinct; limbs slender and not quite pillar-like; articular surfaces of limb bones rather large, allowing larger angles of bending; carpal and tarsal bones comparatively high and do not tend to be flattened; metapodia quite long and slender.

Remarks This new rhinoceros from Shara Muren Eocene is decidedly indricothere-like and more primitive than all the known members of this group. Though of small size and less specialized as an indricothere, it is already among the largest of its rhinocerotoid contemporaries. It shows nearly all the structural features characteristic of that group, except that it has longer limbs and is not so heavily built as the latter forms. It also differs from the others in having full number of little specialized incisors and canines. This feature is retained only with some modification in the recently described Oligocene genus *Urtinotherium* (*U. incisivum* Chow and Chiu, 1963). The occurrence of a rather typical form of giant rhinoceros in upper Eocene indicates that the origination of the group is sure to have dated back to still earlier Eocene time.



Juxia sharamurenense gen. et sp. nov.