

# 河南洛阳东沙坡层的中新世脊椎动物\*

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不久前,中国科学院地质研究所第四纪地质研究室收到了河南地质局区域地质测量队寄来的哺乳动物化石。这批材料采自洛阳西南约 4 公里的东沙坡,其中除一些破碎的肢骨外尚有一个保存十分完好的利齿猪 (*Listriodon*) 的上门齿。利齿猪化石在世界各地多分布于中新世地层内,此外,仅在西瓦立克上新统底部有过少许发现。我国曾在甘肃永登的甘肃组下部咸水河系以及内蒙通古尔层内先后找到过这类化石。近年来,在陕西蓝田中新世地层寇家村组内曾找到较多的利齿猪化石,1960 年对其地层曾有过初步报导。这次利齿猪化石在河南的发现为确定该地区产化石地层的时代提供了依据。

周明镇先生热情的支持这一工作的完成和提供了宝贵的意见,河南地质局区域测量大队薛松鹤同志寄来化石和提供地层剖面,作者等在此表示感谢。

## 标本记述

### 利齿猪亚科 *Listriodontinae*

#### 利齿猪属 *Listriodon*

#### 洛氏利齿猪 *Listriodon cf. lockharti* (Pomel)

**材料:** 一个未经磨蚀的左上第一门齿。编号: V. 2804, (野外编号 8911/B)

**化石产地:** 河南洛阳东沙坡。

**时代:** 下一中中新世。

**标本描述:** 牙齿齿冠部分保存完好,齿根缺如。齿冠较低,横向伸长(高 15.2 毫米,宽 24.8 毫米)。唇面呈半球状,舌面平。齿冠顶部为一深沟分隔为两个尖,邻近右  $I^1$  的尖较高而齐,邻近  $I^2$  的尖急剧的向  $I^2$  方向倾斜。两尖的顶又各有一较浅的沟。齿带发育很好,呈弧形,接右  $I^1$  端较高,向接  $I^2$  端倾伏。

**比较和讨论:** 从上述特征可以看出这个门齿清楚的具有利齿猪属所特有的第一上门齿宽大和齿带发育的构造。它代表一个小型的利齿猪是没有疑问的。

河南标本和我国发现的大型巨利齿猪 (*Listriodon gigas* Pearson) 相应的牙齿比较,大小相差悬殊,后者要大得多(高 30.5 毫米,宽 41 毫米,依裴尔森 1928 年,插图 2,图 a 和 e),二者在形态上也不相同。河南标本齿冠分为四个小尖,但裴尔森所记述的,和采自西安蓝田的巨利齿猪的第一上门齿均只分为左右两个主尖。另外河南标本的齿带一端较高,呈弧形向  $I^2$  方向弯曲,而巨利齿猪的齿带则较平,不呈向  $I^2$  方向弯曲的现象。

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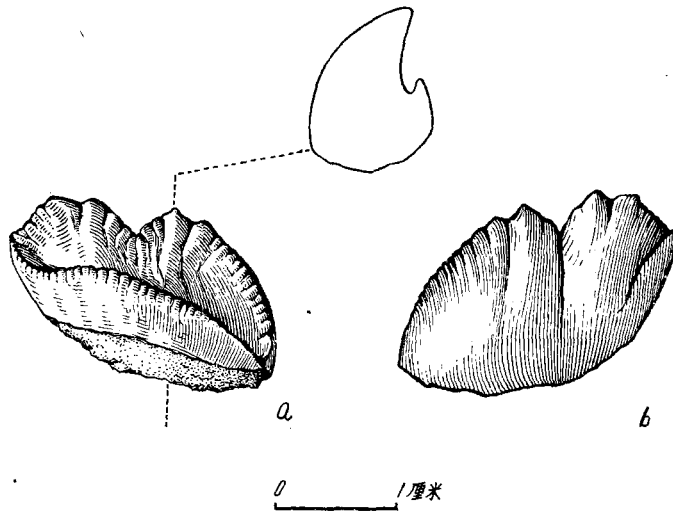


图1 *Listriodon* cf. *lockharti* (Pomel)

左上第一門齿 a. 舌面观, b. 唇面观。

通古尔层中的蒙古利齿猪 (*L. mongoliensis* (Colbert)) 个体较小, 接近于河南的标本, 但因尚未找到过上門齿, 所以无从作进一步的比较。

与欧洲常见种 [*L. splendens* (Meyer)] 相比较除两者的齿带形态不同外 (*L. splendens* 的齿带形状与 *L. gigas* 相似), 齿尖分裂情况也不一样。 *L. splendens* 齿冠分为三个尖, 而河南标本仅有两个主要的尖, 这两尖又分别为一浅沟隔开, 共形成四个尖。

在西瓦立克上新世地层中曾发现 *Listriodon pentapotamiae* (Falconer) 种, 其特征均与欧洲常见种 *L. splendens* 相近。其时代也和我国河南标本有区别。

河南标本在形态上有很多方面与欧洲的 *L. lockharti* (Pomel) 的第一上門齿十分相似。如齿冠均分裂为四个尖, 齿带二者全为弧形。从法国 Romie 地方下中新统 (Burdigalian) 中所发现的 *L. lockharti* 的第一上門齿, 其齿形及齿尖分裂情况基本上与我国河南标本相一致。在大小方面, 河南标本稍稍大于 *L. lockharti*。目前世界各地发现的利齿猪化石近十个种。但在所获得的材料中包括門齿的却不多, 因而河南标本无从更广泛的与本属已知其他种作更多的比较。就河南标本来讲, 在未得到更多的材料以前, 要精确地肯定其种的位置是有困难的。但就现有材料的比较观察, 河南标本所显示的特征和 *L. lockharti* 的 I<sup>1</sup> 更为近似, 所以暂定其为洛氏利齿猪 *Listriodon* cf. *lockharti* (Pomel)。

根据这类动物在我国和其他地区的地层分布情况看, 河南的化石属中新世是无疑的。按化石的形态分析, 河南的化石代表利齿猪属较小的种, 很可能较巨利齿猪和蒙古利齿猪稍原始, 为中新统下部或中部的产物。

值得注意的是这一化石发现于一套半胶结的地层之中(见剖面)。这套地层据薛松鹤同志报导, 过去研究者因未找到化石曾以之和早更新世泥河湾层(三门系)相对比。利齿猪化石的发现, 可以说明“东沙坡层”的时代属于早一中中新世, 和西安蓝田的寇家村组相当。

这一化石地点是继西安蓝田之后又一新的中新世地层的发现。这些线索都显示华北

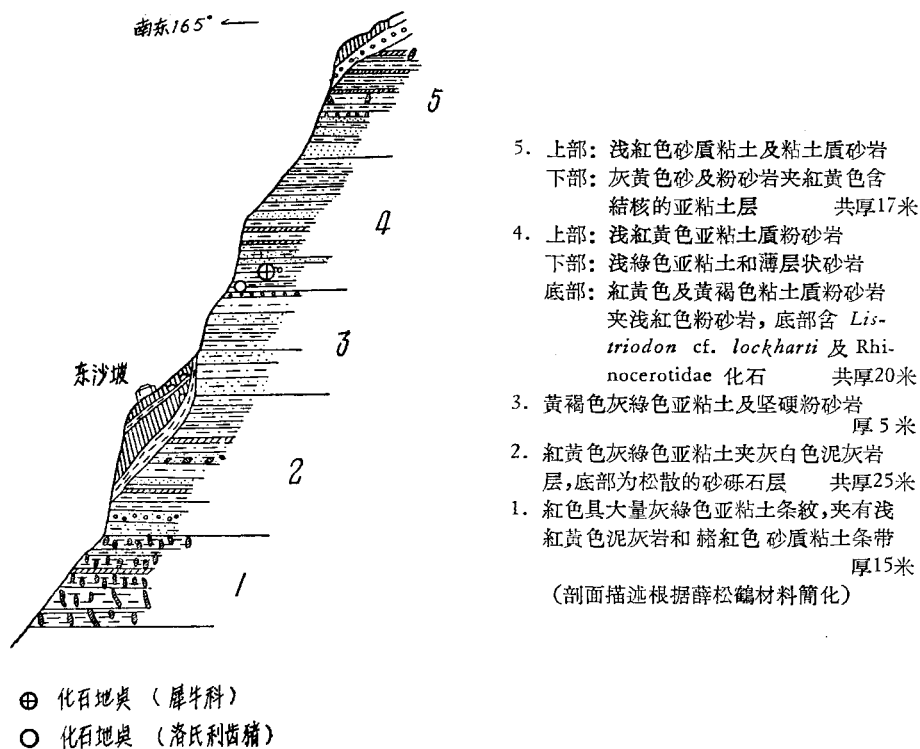


图2 东沙墩下中新统地层剖面图

地区中新世地层的分布不象过去所想象的那样贫乏, 反之可能相当发育。只是由于其地层系由松散的粘土和砂砾石组成, 所以在无化石根据的情况下易于与第四纪地层相混。这倒是值得今后地质工作中应特别予以注意的。

### Rhinocerotidae, gen. et sp. indet

#### 犀牛科, 种属无从鉴定

仅一左挠骨的远侧端及一些十分破碎的肢骨和趾骨。从挠骨远侧关节的形状, 表明属于犀牛科。由于材料太少, 而且十分破碎, 暂难确定到属。

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## MIOCENE MAMMALS FROM TUNG-SHA-PO, LOYANG, HONAN PROVINCE

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Recently a small collection of mammalian remains were collected by the geologist Hsu Sung-ho from Tung-sha-po, a village about 4 Km SW. of Loyang, Honan Province. Among this materials there is a well preserved first upper incisor belonging evidently to the Miocene suid *Listriodon*.

The purpose of this paper is to give a brief description of the tooth of this listriodontid pig and to point out the significance of its presence in the Tung-sha-po formation of Honan.

The authors are indebted to Dr. Chow Min-chen for reading the manuscript.

### *Listriodon* cf. *lockharti* (Pomel)

**Material:** An unworn left first incisor of the upper jaw. Cat. No. V.2804 (field No. 8911/B).

**Locality:** Tung-sha-po, 4 Km. SW. of Loyang, Honan Province.

**Horizon and Age:** Tung-sha-po formation. Lower-Middle Miocene.

### **Description and Discussion:**

Crown of the tooth ( $I^1$ ) low and broad (height 15.2 mm, breadth 24.8 mm); labial surface convex, lingual surface straight. A main sulcus divide the crest of the crown into two lobes, one higher and truncated, the other lower and steeply declining towards the direction of the adjacent  $I^2$ . Each lobe is further subdivided into two minor cusps by a shallow furrow situated on the top. Cingulum at the lingual surface well developed, forming an elongated shallow basin.

This incisor (text. fig.1) being that of a *Listriodon* is at once made clear by its very broad crown with well developed cingulum on the lingual surface. It is much smaller in size as compared with that of *Listriodon gigas* (Pearson, 1928). In the latter form the  $I^1$  (height 30.5 mm, breadth 41.0 mm) is nearly twice as large as in the Honan specimen. Other differences are also apparent. The specimen from Honan bears four minor cusps on the crest of the crown, while in *L. gigas* there are only two lobes. The Honan specimen also has its cingulum developed highly at the central edge of the tooth and lowly at the lateral edge, but that of *L. gigas* has its cingulum evenly displayed along the lingual surface.

As no  $I^1$  of *L. mongoliensis* (Colbert, 1935) has been found, it is impossible to make a direct comparison between it and our specimen, which is however in general of smaller size. The possibility that it might belong to the Mongolian species cannot be entirely excluded.

Comparing with *L. splendens* (Myer) of the European Vindobonian, the crown of  $I^1$  in the European form is clearly subdivided into three lobes instead of four as in the Honan specimen. The development of cingulum of *L. splendens* is like in that of *L. gigas*,

differing from the here described specimen.

*Listriodon* from the lower Siwalik beds of northern Pakistan (Pilgrim, 1926) are all closely resembling the European species *L. splendens* (except *L. guptai*). I<sup>1</sup> of these forms is similar to that of *L. splendens* in structure and differs from the Honan specimen.

Morphologically Honan specimen resembles the first upper incisor of the bunodont species *Listriodon lockharti* (Pomel) of European Burdigalian in many respects. The crown of the both forms are subdivided into four small cusps and the development of the cingulum are of the same type. When compared the Honan specimen with the first upper incisor discovered from the Burdigalian of La Romie, France (Roman et Viret, 1934. Pl. X.) the Honan specimen though slightly larger in size duplicates it in general shape and in many other details. Therefore the authors assign this tooth as *Listriodon* cf. *lockharti*.

*L. lockharti* is of Burdigalian age in Europe. The presence of it from Honan not only confirms that the Tung-sha-po formation (text fig. 2) is of Miocene in age but also hints at that this formation might turn out to be the first occurrence of a Lower Miocene mammalian horizon in Northern China.

Other material found together with *Listriodon* cf. *lockhart* are shattered Rhinocerotidae limb bones.