

中国内蒙古的阿尔丁鼠 (*Ardynomys*) 化石¹⁾

王伴月¹ 孟 津²

(1 中国科学院古脊椎动物与古人类研究所 北京 100044)

(2 美国纽约自然历史博物馆 纽约 10024)

关键词: 内蒙古, 始新世, 渐新世, 圆柱齿鼠科

中图法分类号: Q915.873 **文献标识码:** A **文章编号:** 1000-3118(2009)03-0240-05

阿尔丁鼠(*Ardynomys*)是圆柱齿鼠科(cylindrodontids)中较原始的一类,主要分布于亚洲的晚始新世—早渐新世和北美的晚始新世,在亚洲主要发现于蒙古和哈萨克斯坦。虽然 Dawson (1968)和王伴月、王培玉(1991)报道了在我国内蒙古也有 *Ardynomys* 化石存在,但未描述比较,其性质并不很清楚。为了了解中国的 *Ardynomys* 的真正性质,在此对在内蒙古采集的有关标本作简要描述和比较。

文中缩写:AMNH, 美国纽约自然历史博物馆;IVPP V, 中国科学院古脊椎动物与古人类研究所脊椎动物化石编号;PSS, 蒙古科学院地质研究所古生物和地层学部。

圆柱齿鼠科 *Cylindrodontidae* Miller & Gidley, 1918

奥氏阿尔丁鼠 *Ardynomys olsoni* Matthew & Granger, 1925

(图1;表1)

1925 *Ardynomys chihi* Matthew and Granger, p. 7, fig. 9

1952 *Ardynomys chihi*, Vinogradov and Gambaryan, p. 16, figs. 3, 5

1996 *Ardynomys russelli* Dashzeveg, pp. 342-347, figs. 1-6

标本 2段左下颌骨,一件具 i2 和 m2 (AMNH 22108),一件具 p4-m3 (AMNH 22109)。

地点和层位 内蒙古四子王旗巴润绍喇嘛庙北4英里(= 6.4 km);晚始新世乌兰戈楚层。

记述 下颌骨短而高,下颌颞区较粗壮。下门齿与 p4 间齿隙短,其背侧的纵棱很发达。颞孔小,位于 p4 的前下方。咬肌窝前缘位于 m2 下方。角突有明显向内卷的下缘。

下门齿前面平,横向稍凹。颊齿齿冠低;但下次尖为单面高冠,并膨大为最大的尖,向前外侧伸。其向外超过下原尖的程度由 p4 往 m3 逐渐减弱。下后附尖棱发达,与下内尖仅以弱沟分开。p4 下三角座明显窄于下跟座。无下后脊 I, 下后脊 II 很短,完全。下三角

1) 科技基础性工作专项(编号:2006FY120400)、中国科学院知识创新工程重要方向项目(编号:KZCX2-YW-120)和国家自然科学基金重点项目(编号:40730210)资助。

收稿日期:2008-08-04

座盆很窄小,向前开口。下次脊短而弱。下三角座在 m1-2 稍窄于下跟座,在 m3 稍宽于下跟座。下臼齿的下后脊 I 完全,下后脊 II 短,向前舌侧斜伸,封闭窄小的下三角座盆。下次脊细,与下外脊连。下外脊短,无下中尖。下中凹宽而浅,凹中有时有低的附加的纵棱。下后凹前后较短,舌端开口。下外凹深,向前颊侧伸(图 1)。

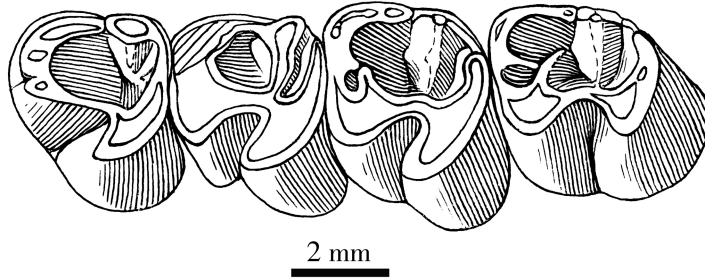


图 1 奥氏阿尔丁鼠下颊齿(AMNH 22109)冠面

Fig. 1 Occlusal view of lower cheek teeth of *Ardynomys olseni* (AMNH 22109)

内蒙古上述 2 下颌骨和牙齿的基本特征均与 *Ardynomys olseni* 的一致(参见 Matthew and Granger, 1925: fig. 8),而且其牙齿的尺寸也在 *A. olseni* 的变异范围内(见表 1)。笔者赞同 Dawson (1968)的意见,将该 2 件标本归入 *A. olseni* 种。这样就肯定了该种在中国的存在。

表 1 奥氏阿尔丁鼠牙齿测量比较

Table 1 Measurements of lower teeth of *Ardynomys olseni* (mm)

<i>Ardynomys olseni</i>	present authors		Wood, 1970		Dashzeveg, 1996	
	AM 22109	AM 22108	Range	Average	PSS no. 40/6	PSS no. 40/13
p4-m3 L	14.6		13.8 ~ 15.25	14.1	14.1	11
m1-m3 L	10.6				10.1	9
p4 L	3.5		2.88 ~ 3.58	3.28	3.4	3
p4 AW	2.6		2.22 ~ 3.66	2.96		
p4 PW	3.9		3.58 ~ 4.93	4.1	4.1	3.2
p4 PW/L	1.11		1.18 ~ 1.38*	1.28*	1.21**	1.07**
m1 L	3.4		2.9 ~ 3.5	3.21	3.4	2.9
m1 AW	3.2		3.1 ~ 3.79	3.42		
m1 PW	3.6		3.47 ~ 5.1	4.11	4.1	3.3
m2 L	4	4	3.11 ~ 3.5	3.3	3.7	2.9
m2 AW	3.7	3.9	3.5 ~ 4.12	3.81		
m2 PW	4	4.4	3.7 ~ 4.93	4.28	4.2	3.4
m3 L	4.6		3.66 ~ 4.1	3.94	3.5	2.5
m3 AW	3.8		3.37 ~ 3.8	3.59		
m3 PW	3.7		3.25 ~ 3.67	3.48	3.7	3.1
il L		4.5	3.39 ~ 5.85			
il W		3.5	2.91 ~ 4.2			
il W/L		0.78	0.72 ~ 0.86			

Abbreviations: AW. anterior width; L. length; PW. posterior width; W. width; * calculate based on measurements of Wood (1970); ** calculate based on measurements of Dashzeveg (1996).

讨论 Dashzeveg (1996) 建立了拉氏阿尔丁鼠(*Ardynomys russelli*)。他认为 *A. russelli* 与 *A. olseni* 的区别是:个体较小,门齿较明显弯曲,齿隙较长,以及 *A. olseni* 的 p4 较窄等 (Dashzeveg, 1996:345)。笔者比较了 *A. olseni* 和 *A. russelli* 有关标本和插图后发现, Dashzeveg 所指出的两者的区别并不存在:1) 从表 1 可以看出, *A. russelli* 的正型标本 (PSS no. 40/6) 的尺寸完全在 *A. olseni* 的变异范围内,只是归入标本 PSS no. 40/13 稍小些; 2) PSS no. 40/6 下门齿的弯曲度与弯曲较小的 AMNH 20370 的相近,而比 AMNH 20368 的还要小得多(比较 Wood, 1970: fig. 1A 和 Dashzeveg, 1996: fig. 5); 3) AMNH 20368 的 i2 与 p4 间的齿隙长为 10.3 mm,稍长于 PSS no. 40/6 的(9.6 mm)。AMNH 20370 下颌前端保存不够完好,估测其齿隙长为 9.1 mm。此外, PSS no. 40/6 的下门齿前缘平,颊齿及下颌骨的形态,颞孔和咬肌窝的位置等均与 *A. olseni* 的一致。显然 *A. russelli* 应为 *A. olseni* 的后出同物异名。

阿尔丁鼠(未定种 A) *Ardynomys* sp. A

中亚考察团 1928 年在内蒙古四子王旗东台地雅玛敖包(Jhama Obo)的乌兰戈楚层中还采集了 2 件下颌骨(AMNH 26076 和 AMNH 26077,野外号:674)。AMNH 26076 是一段左下颌骨具正在萌出的 m3。AMNH 26077 为一段右下颌骨具 m1-2 [前宽×后宽×长(mm): m1: 3.3×3.5×3.1; m2: 3.4×3.5×3.9]。它们的臼齿形态特征与 *Ardynomys olseni* 的相似,其尺寸也在后者的变异范围内。但与 *Ardynomys olseni* 和其他种不同的是,臼齿在下原尖和下次尖间有附加的小尖,下次尖不很向前弯伸等。笔者赞同 Dawson (1968) 的意见,确认它们为 *Ardynomys* 属的未定种(*Ardynomys* sp.)。

阿尔丁鼠(未定种 B) *Ardynomys* sp. B

(图 2)

中科院古脊椎所一野外队 1988 年在内蒙古阿拉善左旗克克阿木下渐新统乌兰塔塔尔组底部第一层红砂岩(h1-0)中采集到一枚右上臼齿(M1/2) (IVPP V 15910)。该 M1/2 冠面与 *Ardynomys glambus* 的相似:为长窄的卵圆形,舌侧齿冠高于颊侧者;具 4 横脊,原脊和后脊往舌侧相互靠近,均与原尖连;具后小尖;前边脊和后边脊分别与前尖和后尖连,封闭前凹和后凹;中凹大,向颊侧开口。它的尺寸(长×宽:2.9 mm×2.4 mm)较 *A. glambus* (M3 长 2.65 mm;依 Shevyreva, 1976:46) 的稍长,比 *A. olseni* [M1-M3 的长×宽(mm)分别为 3.0×4.5, 3.2×4.2 和 3.0×3.5; 见 Dashzeveg, 1996:342] 的稍短,比例上较窄长。

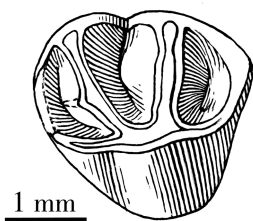


图 2 阿尔丁鼠(未定种 B)
右 M1/2 (V 15910) 冠面

Fig. 2 Occlusal view of right M1/2
(V 15910) of *Ardynomys* sp. B

致谢 插图由古脊椎动物与古人类研究所沈文龙先生绘制,诚致谢意!

ARDYNOMYS (CYLINDRODONTIDAE, RODENTIA) FROM NEI MONGOL, CHINA

WANG Ban-Yue¹ MENG Jin²

(1 *Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences Beijing 100044*
wangbanyue@ivpp.ac.cn)

(2 *American Museum of Natural History New York NY 10024 USA*)

Key words Nei Mongol, Eocene, Oligocene, Cylindrodontidae

Summary

Ardynomys, a genus of Cylindrodontidae, is well known from the Paleogene of Mongolia, Kazakhstan and North America, but less so from China. Dawson (1968) and Wang and Wang (1991) reported some *Ardynomys* specimens from Nei Mongol, but they did not describe them in detail. In order to know the features and phylogenetic position of those specimens, we describe and compare them in this paper.

Cylindrodontidae Miller & Gidley, 1918

Ardynomys olsoni Matthew & Granger, 1925

(Fig. 1; Table 1)

Synonymy seen in Chinese text.

Specimens One segment of a left lower jaw with i2 and m2 (AMNH 22108) and a segment of a left lower jaw with p4–m3 (AMNH 22109).

Locality and horizon Four miles north to Baron Sog Lamasary, Siziwang Banner, Nei Mongol; Late Eocene Ulan Gochu Beds.

Remarks The lower jaw has a massive chin process. The mental foramen is located anterior to p4. The anterior border of the masseteric fossa is below m2. The lower border of the angle is inflected. The lower incisor is slightly concave transversely. The lower cheek teeth are brachyodont, but with a unilaterally hypsodont hypoconid that is expanded and extends anterobuccally. The metastylid crest is separated from the entoconid by a narrow gap. The p4 has a small trigonid basin open anteriorly, and a short hypolophid. On m1–3 the metalophid I and metalophid II are complete and encloses the small trigonid basin. The slim hypolophid joins with the ectolophid. The ectolophid is short and the mesoconid is absent. The mesosinusid is broad and posterosinusid is short. The deep sinusid extends anterobuccally. All the features are identical with those of *Ardynomys*, specially *A. olsoni*. The lower teeth are within the size variation range of *A. olsoni* (see Table 1).

Discussion Dashzeveg (1996) erected the species *A. russelli*. It seems to us that the differences between *A. russelli* and *A. olsoni* mentioned by Dashzeveg (1996:345) are not so convincing in the following aspects: 1) as Table 1 shows, the tooth sizes of *A. russelli* are all within the size variation range of *A. olsoni*; 2) the length of the diastem of *A. russelli* (9.6 mm) is also within the variation range of *A. olsoni* (10.3 mm in AMNH 20368 and 9.1 mm in AMNH 20370); 3) the curvature of the incisor of PSS no. 40/6 is close to that of AMNH 20370. Obviously *A. russelli* is a junior synonym of *A. olsoni*.

Ardynomys sp. A

Two lower jaws were collected from Late Eocene Ulan Gochu Beds of Jhama Obo, East Mesa, Siziwang Banner, Nei Mongol in 1928 (AMNH field number 674). The m1–2 is similar to that of *Ardynomys olsoni* in the general tooth morphology, and their sizes [AW/PW/L (mm): m1: 3.3/3.5/3.1; m2: 3.4/3.5/3.9] fall into the variation range of *A. olsoni*.

However, they bear minor differences from *A. olseni* and other species in having buccal cuspule between the protoconid and hypoconid, and a less hooked hypoconid anteriorly. We agree with Dawson (1968) to consider them as *Ardynomys* sp. here.

***Ardynomys* sp. B**

(Fig. 2)

A right M1/2 (IVPP V 15910) was collected from Early Oligocene Ulanatal Formation, Kekeamu, Alxa Left Banner, Nei Mongol. It is oval in occlusal view and with a more lingually hypsodont. The protoloph and metaloph are convergent lingually to meet the protocone. The anteroloph and posteroloph meet the paracone and metacone to close the anterosinus and posterosinus respectively. The metaconule is distinct. The large mesosinus opens buccally. These features are similar to those of *Ardynomys*, especially *A. glambus*. The M1/2 is longer than that of *A. glambus*, and shorter and narrower than that of *A. olseni*. It is also considered as *Ardynomys* sp., but it is perhaps different from *Ardynomys* sp. A from Jhama Obo.

References

- Dashzeveg D, 1996. A new *Ardynomys* (Rodentia, Cylindrodontidae) from the Eocene of the Eastern Gobi Desert, Mongolia. *Palaeovertebrata*, **25**(2-4): 339-348
- Dawson M R, 1968. Oligocene rodents (Mammalia) from East Mesa, Inner Mongolia. *Am Mus Novit*, (2324): 1-12
- Matthew W D, Granger W, 1925. New creodonts and rodents from the Ardyn Obo Formation of Mongolia. *Am Mus Novit*, (193): 1-7
- Shevyreva N S, 1976. Paleogene rodents of Asia. *Trans Palaeont Inst Acad Sci USSR*, **158**: 1-113
- Vinogradov B S, Gambaryan P P, 1952. Oligotsenovyie tsilindrodontyi Mongolii i Kazakhstana (Cylindrodontidae, Glires, Mammalia). *Tr Paleont Inst Akad Nauk SSSR*, **41**: 13-42 (in Russian)
- Wang B Y (王伴月), Wang P Y (王培玉), 1991. Discovery of early medial Oligocene mammalian fauna from Kekeamu, Alxa Left Banner, Nei Mongol. *Vert PalAsiat (古脊椎动物学报)*, **29**(1): 64-71 (in Chinese with English summary)
- Wood A E, 1970. The Early Oligocene rodent *Ardynomys* (Family Cylindrodontidae) from Mongolia and Montana. *Am Mus Novit*, (2418): 1-18