



江西池江盆地阶齿兽一新种¹⁾

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1962年在我国广东南雄盆地首次发现了阶齿兽类化石(周明镇等, 1973; 郑家坚等, 1973), 随后在安徽潜山、湖南茶陵、陕西石门、江西大余等地的中古新世地层中相继发现该类动物的化石材料, 尤其是在广东南雄、江西大余和湖南茶陵三个地点, 有大量的阶齿兽类化石产出。阶齿兽类在中古新世时在亚洲南部是广泛分布的。本文记述的阶齿兽材料是2003年在江西池江盆地发掘到的, 此标本与已知的阶齿兽属中各种均有明显差别, 故建立一新种——丁氏阶齿兽(*Bemalambda dingae* sp. nov.)。

钝脚目 *Pantodonta* Cope, 1873

阶齿兽科 *Bemalambdidae* Chow et al., 1973

阶齿兽属 *Bemalambda* Chow et al., 1973

丁氏阶齿兽 *Bemalambda dingae* sp. nov.

(图1)

正型标本 一段下颌骨, 左侧保存有 i1 和 c, 右侧保存有 p4 ~ m3 (IVPP V 14394)。

产地及层位 江西省大余县青龙镇枫树下南偏西约 300 m, 中古新世狮子口组。

种的特征 下颌骨浓厚, 前端开阔, 下颌联合延伸至 p2; 水平支粗壮。p4 跟座不发育, 前臼齿没有臼齿化; m3 冠面呈方形, 跟座与三角座宽度相当。

名称来源 种名送给化石的发现者丁素因教授。

标本描述 标本保存有右侧下颌的水平支。下颌骨浓厚, 联合部延伸至 p2。水平支很粗壮, 支的外侧面向外隆凸, 内侧面稍向上倾斜。

左侧第一门齿仅保留有根部, 断面为圆形, 直径约 8 mm。左侧还保存有部分犬齿, 从残留的部分来看犬齿齿根可能是圆柱形, 向上逐渐变得侧扁。

右侧 p4 呈三角形, 冠面有一些破碎, 但仍然能够清楚地看到下原尖是最高的尖; 下后尖比下前尖发育。跟座不发育。前臼齿没有臼齿化。

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m1 ~ m3 从前向后逐渐增大。m1 的三角座呈不对称的“V”形,下原尖发育;下前尖退化,比下原尖要小很多;下后尖发育,比下原尖还要粗大;下前脊和下原脊有部分破损,但很明显下原脊要比下前脊长并且高;下三角凹狭窄。跟座也呈“V”形,比三角座小许多,并且低矮,但脊间夹角比三角座大,下跟凹开阔;其中下次尖比下内尖高,下跟凹不封闭;前齿带发育。m2 与 m1 特征相似,只是比 m1 稍大,三角座部分下前脊更低斜,与下原脊的夹角更小,使得下三角座更为陡斜;跟座明显比 m1 发育,下跟凹更为开阔。m3 是白齿中最大的,它的下前尖非常不发育,致使下前脊更短,下后尖明显比下原尖大;跟座有部分破碎,但是很明显其后端没有向后形成第三叶,跟座与三角座宽度相当(测量见表 1)。

表 1 丁氏阶齿兽(新种)的下颊齿(V 14394)测量及与其他阶齿兽的比较
Table 1 Measurements and comparison of the lower cheek teeth (V 14394)
of *Bemalambda dingae* sp. nov. (mm)

	<i>B. dingae</i> sp. nov.	<i>B. nanhsiungensis</i>	<i>B. pachyoesteus</i>	<i>B. shizikouensis</i>	<i>B. zhoui</i>
p4 W	9.5	7.1	7		
p4 L	10.4	9.6	8.4		
p4 W/L	0.91	0.74	0.83		
m1 W	13.3	6.5	9.3	8.2	9.6
m1 L	12.7	9.7	9.6	10.6	10.5
m1 W/L	1.05	0.67	0.97	0.77	0.91
m2 W	15.7	9.4	12	9.7	12
m2 L	13.7	11.3	11.2	11.3	12.4
m2 W/L	1.15	0.83	1.07	0.86	0.97
m3 W	17.1	10	10.5	10.7	15
m3 L	17.3	14.5	15.2	15.5	15
m3 W/L	0.99	0.69	0.69	0.69	1

注:L. length 长;W. width 宽;W/L. length/width 长/宽。

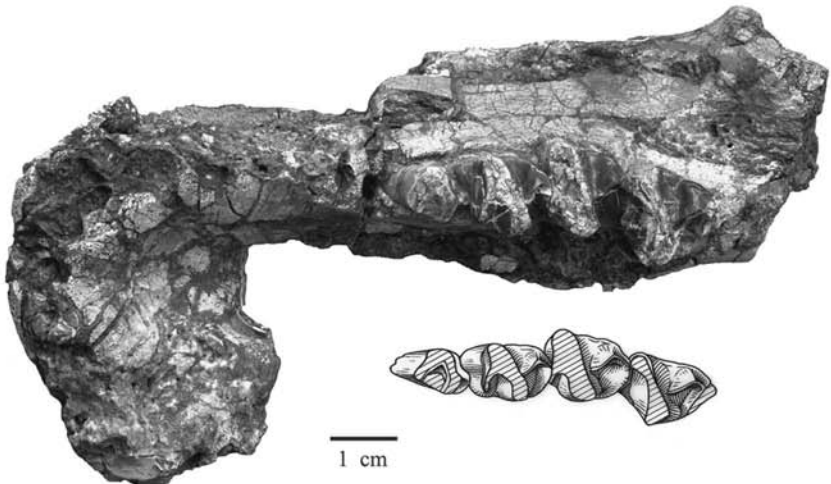


图 1 丁氏阶齿兽(新种)的下颌骨(V 14394),冠面观

Fig. 1 Lower jaw of *Bemalambda dingae* sp. nov. (V 14394), crown view

比较和讨论 该标本下颌骨粗壮,前面陡直,水平支弯曲。 p_4 呈三角形。 $m_1 \sim m_3$ 的三角座比跟座宽,但是脊间夹角比跟座的小。 m_3 跟座不向后突出成第三叶。这些特征都表明该标本应属于阶齿兽科。新标本的 $m_1 \sim m_3$ 又表现出下前尖很退化,下后尖发育,比下原尖还粗大;下原脊比下前脊长并且高,三角座比跟座高很多等特征。这些特征可以将该标本归入到阶齿兽属中。但该标本与以前发现的阶齿兽属其他种仍有明显区别。

阶齿兽属现在包括有南雄阶齿兽(*B. nanhsiungensis*)(周明镇等,1973),肿骨阶齿兽(*B. pachyoestus*)(周明镇等,1973),粗壮阶齿兽(*B. crassa*)(周明镇等,1973),狮子口阶齿兽(*B. shizikouensis*)(王伴月、丁素因,1979)和周氏阶齿兽(*B. zhoui*)(薛祥熙等,1996) 5 个种。从测量(表 1)来看,新种个体最大,并且下颌骨和牙齿显得更为粗壮。在这 5 个种中,*B. shizikouensis* 和 *B. nanhsiungensis* 的前臼齿都已经臼齿化;*B. shizikouensis* 的 p_4 跟座发育,*B. nanhsiungensis* 的 p_4 跟座为简单的纵脊,从下原脊的后壁向后伸。而新种的 p_4 跟座不发育,没有臼齿化。虽然 *B. zhoui* 的前臼齿也没有臼齿化,但是它的下颌无肿厚现象,而新种不仅下颌骨联合部后端延伸到 p_2 ,而且前面宽阔,整个水平支也显得粗壮。新种与 *B. pachyoestus* 的区别在于,后者虽然有下颌肿厚现象,但是骨体前面并不显得宽阔;另外在臼齿形态上两者差别明显,新种臼齿冠面通常宽接近长或者略大于长,使得牙齿呈方形,而 *B. pachyoestus* 的臼齿冠面为长方形,长大于宽,尤其是 m_3 两者形态差别明显。*B. crassa* 仅保存有上牙,其牙齿结构与 *B. nanhsiungensis* 相类似,只是个体相对较大。根据以上特点,江西大余阶齿兽的新材料应代表一个新种。

阶齿兽科(Bemalambdidae)是周明镇等 1973 年订立的,归入钝角目(Pantodonta),现包括有叉齿兽属(*Hypsilolambda*)和阶齿兽属(*Bemalambda*)(Muizon and Marshall, 1992)。通过对阶齿兽的牙齿、头部和头后骨骼的比较形态学分析,周明镇等(1977)认为阶齿兽科可能是钝角目中较原始的一科。他们将阶齿兽科归入钝角目,最重要的依据是阶齿兽类的 P_3 和 P_4 具有双“V”形的特征。Muizon 和 Marshall (1992)将这一特征作为钝角目的关键特征,并同意将阶齿兽科归入钝角目。但 Van Valen (1988)不同意将阶齿兽科归入钝角目中。存在这样不同的看法是因为阶齿兽类除了有一些钝角类共同的特点外,还具有一系列自身的特化性状,这些性状可能代表了阶齿兽类在形态机能方面的特化,也可能是代表了不同的演化方向,因此对阶齿兽科分类位置的确定还需要做进一步深入的研究,也有待于有更多新材料的发现。

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NEW MATERIAL OF *BAMALAMBDA* FROM CHIJIANG BASIN IN JIANGXI, CHINA

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Key words Chijiang Basin, Jiangxi Province, Middle Paleocene, Bemalambdidae

Summary

Bemalambda was first found from Nanxiong Basin, Guangdong Province in 1962 (Chow et al., 1973; Zheng et al., 1973). The subsequent discoveries of bemalambdids from the Middle Paleocene of Qianshan of Anhui, Lingcha of Hunan, Shimen of Shaanxi, Chijiang of Jiangxi indicate that *Bemalambda* had a wide distribution in the Middle Paleocene of southern China. The specimen described in this paper was found from Chijiang, Jiangxi in 2003 and is distinctly different from those of other species in the genus. It represents a new species, *Bemalambda dingae* sp. nov.

Pantodonta Cope, 1873

Bemalambdidae Chow et al., 1973

***Bemalambda* Chow et al., 1973**

***Bemalambda dingae* sp. nov.**

(Fig. 1)

Type A segment of lower jaw. The left i1 and canine are broken. The right lower jaw with p4 ~ m3 is preserved (IVPP V 14394).

Locality and horizon About 300 m southwest to Fengshuxia, Dayu County, Jiangxi Province; Middle Paleocene.

Etymology Dedicated to Dr. Suyin Ding for collecting the specimen.

Diagnosis The lower jaw is tumescent and thick, with its anterior part widened, the posterior margin of symphysis reaching the p2. The ramus mandibula are strong. The premolars are not molarized. The talon of p4 is not developed. The crown of m3 is square in shape and the talon of the tooth is not elongated.

Comparison *Bemalambda* includes five species (*B. crassa*, *B. nanhsiungensis*, *B. pachyoestus*, *B. shizikouensis*, and *B. zhoui*). The new species is probably the largest bemalambdid according to the width and length of the lower cheek teeth as shown in Table 1. The premolars of *B. shizikouensis* and *B. nanhsiungensis* have already molarized. The talon of the p4 of *B. shizikouensis* is well developed. The talon of the p4 of *B. nanhsiungensis* is a simple vertical ridge which extends posteriorly from the posterior margin of protolophid. However, the talon of the p4 of the new species is not developed and its premolar is not molarized. Although the premolar of *B. zhoui* is not molarized either, its lower jaw shows no tumescence. The lower jaw of the new species is tumescent and thick, the posterior margin of symphysis reaching the p2. The new species differs from *B. pachyoestus* in that the latter is not widened in the anterior part of lower jaw. In addition, the two species are quite distinct from each other in molar morphology. The molar crown of the new species is square in shape, but the latter rectangular. *B. crassa* is represented by only upper teeth and is very similar to *B. nanhsiungensis* but relatively larger. Based on the features of the material from Chijiang, a new species is proposed - *Bemalambda dingae* sp. nov.

Chow et al. (1977) regarded Bemalambdidae (*Bemalambda* and *Hypsilolambda*) from the

Paleocene of China as primitive pantodonts mainly according to the strongly V-shaped ecolophids on p3 ~ p4. Van Valen (1988) argued that they are non-pantodonts but palaeoryctoid derivatives. Muizon and Marshall (1992) suggested that the pantodont affinities of Bemalambdidae are featured by the possession of an incipiently V-shaped centrocrista and non-connate paracone and metacone. Therefore, the systematic position of Bemalambdidae remains uncertain.

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