

# 广东南雄晚古新世哺乳类二新种<sup>1)</sup>

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**摘要** 记述了发现在广东南雄晚古新世地层中的北柱兽目和钝脚目各一新种——中间沟柱兽(*Bothriostylops medius* sp. nov.)和大塘南岭兽(*Nanlingilambda datangensis* sp. nov.)。中间沟柱兽的个体大小介于南方种(*B. notios*)和进步种(*B. progressus*)之间,但 M3 尤其是 m3 相对上述两种更大。大塘南岭兽比池江南岭兽(*N. chijiangensis*)个体小、下颊齿跟座窄小、下后尖比下前尖高大。

**关键词** 广东南雄,晚古新世,钝脚类,北柱兽类

**中图法分类号** Q915.873

本文报道的标本是作者采于 20 世纪 70 年代。由于种种原因,研究工作一直未能进行。新近研究表明,它们代表了两个新种,分属于北柱兽目北柱兽科沟柱兽属和钝脚目全棱齿兽科南岭兽属。新的发现更加丰富了作为浓山期的浓山组动物群的内涵。

**北柱兽目** *Arctostylopida* Cifelli, Schaff et McKenna, 1989

**北柱兽科** *Arctostylopidae* Schlosser, 1923

**沟柱兽属** *Bothriostylops* Zheng et Huang, 1986

**中间沟柱兽(新种)** *Bothriostylops medius* sp. nov.

(图 1)

**正型标本** 残破的左、右上颌骨均带 P4~M3、左下颌骨附 p2~m3,3 件标本属同一个体(V 13504)。

**产地与层位** 广东省南雄县大塘乡,晚古新世浓山组大塘段。

**特征** 一种大小介于南方种和进步种之间、M3 尤其是 m3 相对更大的沟柱兽。

**词义** 种名表示大小和下臼齿特征均介于南方沟柱兽和进步沟柱兽之间的一种沟柱兽。

**描述** 左侧上颊齿保存较好,右侧齿冠稍有破损。P4 近等边三角形,后壁略长于前壁。合尖(前后尖)在外脊上隐约可见,前后向长。原尖高大,圆锥状。原尖前脊细弱,原尖后脊不明显。前、后齿带均不发育。M1 近矩形或梯形,内壁稍短于外壁,宽稍大于长。前尖和前附尖处破损而不明。后尖比较粗壮。原尖仍很高大。前齿带不明显,后齿带比较发育,并在原尖的后内侧形成明显的尖状齿带突起。无内、外齿带。M2 形态似 M1,但比 M1 大得多。前附尖和前尖之间有浅沟,并共同形成突出的牙齿前外角。前齿带低但

1) 国家自然科学基金项目(编号:40102004)资助。

收稿日期:2002-07-25

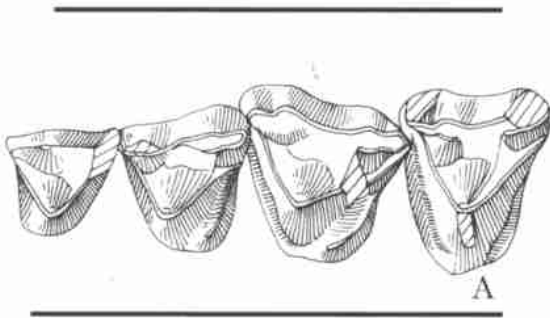


图1 中间沟柱兽(新种)(V 13504),比例尺=10mm

Fig. 1 *Bothriostylops medius* sp. nov. (V 13504), scale bar = 10mm

A. 左上颊齿 P4~M3,冠面观(upper cheek teeth P4~M3, crown view); B1. 左下颌骨附 p2~m3,唇面观(left mandible with p2~m3, labial view); B2. 左下颊齿 p2~m3,冠面观(left lower cheek teeth p2~m3, crown view)

脊比较细弱,与下外月形脊相接,位置较靠后。

测量见表1。

表1 中间沟柱兽(新种)的颊齿测量(V 13504)

Table 1 Measurements of the cheek teeth of *Bothriostylops medius* sp. nov. (V 13504) (mm)

	P4	M1	M2	M3	P4~M3	M1~M3	p2	p3	p4	m1	m2	m3	p2~p4	m1~m2	m2~m3	m1~m3
长(L)	2.4	2.6	3.4	3.3	11.5	9.0	2.5	2.9	3.0	3.1	3.2	4.3	8.0	6.2	7.5	10.6
宽(W)	2.1	2.7	3.6	3.8			1.0	1.0	1.2	1.4	1.8	1.8				

明显,后齿带比在 M1 中宽大,其上的尖状齿带突起更粗大。前、后齿带在原尖内侧相接。M3 大小近 M2,但更加短宽。与前两上臼齿不同还在于外中凹较深,前齿带比后齿带发育,且后齿带上无尖状突起。前、后齿带似在原尖内侧相接。

下颌骨于下前臼齿和下臼齿之间前后错动,因而下颊齿齿列不在一条直线上。下前臼齿侧扁。p2 齿冠严重破损,长大于宽。p3 齿冠纵向有三个齿尖,以中间主尖最大,后基尖最小。p4 次臼齿化,主尖与前基尖在内侧的凹陷较在 p3 中明显,似萌芽状的三角座比跟座大得多。跟座短而小,呈纵脊状,后端似有一微弱的齿尖。下臼齿呈双月形脊,齿冠外壁中沟深,大小从前至后增大, m3 明显长于前两下臼齿。三角座比跟座短得多,但前翼仍不退化。m1~m2 下前尖低而弱,均位于牙齿前侧中部。下前脊明显。下后尖高大,位于齿冠舌侧。下原尖稍低于下后尖。下后脊发育。跟座低而大,外月形脊与三角座后壁中部稍偏外处相接。下内尖在 m2 中比在 m1 中大,轻微脊形。m3 似前两臼齿,但跟座更延长,下次小尖发育,比下内尖高大得多,似形成第三叶。下内尖

**比较与讨论** 北柱兽类化石发现在北美和亚洲,而亚洲主要在中国和蒙古。目前已报道过 10 属大约 12 个种。本文记述的标本与它们相比,均有一定的差别。如北美的 *Arctostylops steini* P4 内齿带发育,M1 和 M2 呈方形,两个舌侧尖之间有沟分开;p4 臼齿化程度高,具一弯曲的在后壁向舌面延伸的跟座脊;下臼齿的下内尖脊强而斜置(Cifelli et al., 1989)。而南雄的 M1 和 M2 略呈梯形;P4 内侧无齿带;p4 臼齿化程度低,跟座纵脊状,小而简单;下臼齿的下内尖脊细弱。亚洲的 *Palaeostylops* (包括 *Gashatostylops*) 个体小,M1 和 M2 具次尖,它的 M2 和 m2 是上、下颊齿中最显著大的牙齿(Matthew and Granger, 1925; Matthew et al., 1929)。而南雄的 M1 和 M2 不具次尖,M2 与 M3 近大或稍小,m2 明显小于 m3。*Sinostylops* 的下颌骨和下颊齿均侧扁,下前臼齿上的各尖不明显(汤英俊、阎德发, 1976),p4 的跟座比南雄标本长得多。*Allostylops* 的 P4 臼齿化程度高,M1 和 M2 具发育的围尖,齿冠呈方形而不是三角形(郑家坚,1979),均与南雄标本有异。*Wanostylops* 以其上臼齿内侧具两个显著的齿带尖(黄学诗、郑家坚,1997)而有别于南雄标本。南雄标本与时代稍晚的 *Anatolostylops* 和 *Stenostylops* 差别就更大。*Anatolostylops* 个体大,齿冠高(翟人杰, 1978)。*Stenostylops* 以其窄长的上臼齿区别于包括本文标本在内的所有已知的北柱兽(黄学诗等,2001)。

在北柱兽类中,与南雄标本最接近的是 *Asiostylops* 和 *Bothriostylops* 两个属,这表现在个体大小相近,齿冠均较低;前面两个上臼齿均呈三角形,无次尖;下臼齿三角座不退化,下内尖脊相对较弱,m3 是下颊齿中最长者。但南雄标本似与 *Asiostylops* 差别更大些。*Asiostylops* 的上颊齿外脊上的前尖和后尖非常突出明显,M1 和 M2 内侧的齿带尖和内齿带弱;下臼齿的三角座更不退化,长度近跟座,下内尖脊极弱;m3 比前面的牙齿长得并不多。这些都与南雄标本有一定的差异,南雄标本倒与 *Bothriostylops* 更接近些。*Bothriostylops* 已记述过两个种——南方沟柱兽(*Bothriostylops notios*)和进步沟柱兽(*B. progressus*) (郑家坚、黄学诗,1986)。广东标本尺寸大于南方种而小于进步种,M3 是上颊齿中最宽的牙齿,而 m3 不仅是下颊齿中最大者,而且在与其他牙齿比例上也比上述两种大得多。下臼齿下次小尖脊比在南方种中发育,但不如进步种粗壮,且位置靠后。从特征上看,南雄标本似乎处于上述两种的过渡阶段。因此它可能代表一新种,本文取其种名为中间沟柱兽(*Bothriostylops medius* sp. nov.)。

由于沟柱兽属上述两个种以往多以下颊齿为其特征,上颊齿尤其是上臼齿材料并不好,中间种的上、下颊齿为同一个体,因此它的上臼齿特征似可代表沟柱兽属的特征。

## 钝脚目 *Pantodonta* Cope, 1873

### 全棱齿兽科 *Pantolambdodontidae* Granger et Gregory, 1934

#### 南岭兽属 *Nanlingilambda* Tong, 1979

#### 大塘南岭兽(新种) *Nanlingilambda datangensis* sp. nov.

(图 2)

**正型标本** 一右下颌骨具 p4~m2,及齿冠破碎的 c1,p2 和 p3(V 13505)。

**产地及时代** 广东省南雄县大塘乡,晚古新世浓山组大塘段下部。

**特征** 一种比池江南岭兽(*Nanlingilambda chijiangensis*)个体小、下颊齿跟座窄小、下

后尖比下前尖高大的南岭兽。

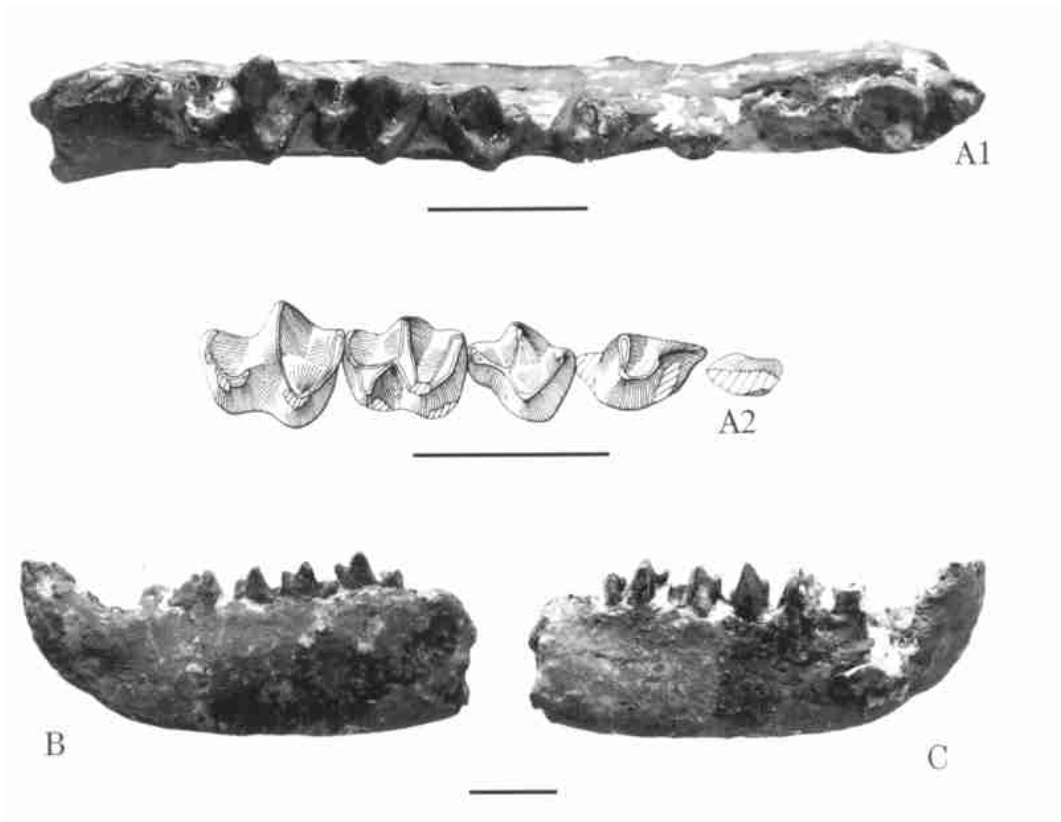


图2 大塘南岭兽(新种)的右下颌骨附c1及颊齿p2~m2(V 13505),比例尺=10mm  
Fig.2 The right lower jaw with c1 and p2~m2 (V 13505) of *Nanlingilambda datangensis* sp. nov., scale bar = 10mm

A1. 冠面观(crown view); A2. p2~m2冠面素描(line drawing of p2~m2, crown view);  
B. 舌面观(lingual view); C. 唇面观(labial view)

词义 种名表示化石产地广东省南雄县大塘乡。

记述与比较 下颌骨比较平直,前后深度相差不大,唇、舌侧深在p3三角座处约为14.0和14.0mm,在m2三角座处分别约为15.5和16.0mm。

表2 大塘南岭兽(新种)的下颊齿(V 13505)测量

Table 2 Measurements of lower cheek teeth (V 13505) of *Nanlingilambda datangensis* sp. nov.

(mm)

	p2	p3	p4	m1	m2	p2~m2	p4~m2	m1~m2
长(L)	4.2*	6.0*	6.2	7.3	8.0	31.2	20.0	14.5
宽(W)	2.5*	3.6*	4.5	4.9	5.1			

\* 为近似值。

c1 齿冠已残破,断面近圆形,比较粗壮,直径约为5.0mm。p2 齿冠破损,但仍可看出

冠面长大于宽。p3 跟座未保存,三角座中三个尖明显,以下原尖最高大。p4 的三角座似 p3,除下原尖外,下后尖也相当高大。下前尖很低小,下前脊很细弱,下后脊在中部有切迹(凹陷)。跟座十分低小,呈脊状,比较近中,基本上为纵向或稍呈前外后内向。m1 和 m2 三角座与 p4 同,跟座亦低小,下次尖比较大,前后向收缩明显。下内尖不太发育,下斜脊比较靠近下后尖。

测量见表 2。

南雄标本 p4 跟座呈脊状,下臼齿三角座和跟座均呈 V 形,后者比前者低小得多,这些特点与钝脚目全棱齿兽科一致。它的下犬齿不前臼齿化,断面呈圆形,比较粗壮,不同于科中的全棱齿兽属(Granger and Gregory, 1934)、古脊齿兽属(Flerov, 1952)、牧兽属(Chow and Qi, 1978)、高脊兽属(Chow and Wang, 1978)和贵池脊齿兽属(Huang and Chen, 1997)。具有粗大的断面呈圆形的下犬齿的南雄标本相似于南岭兽(Tong, 1978),本文将其归入南岭兽属。但与该属中的属型种——池江南岭兽仍有很大区别。池江南岭兽发现在江西省大余县池江盆地的晚古新世地层中,按原作者界定的特征是:p3 和 p4 的轮廓呈次方形,下臼齿跟座短宽,比三角座低矮,下内尖弱,下斜脊靠近下后尖,下前尖和下后尖几乎等大(童永生,1979)。南雄标本在下臼齿跟座比三角座低、下内尖不明显、斜脊比较靠内等方面与池江种同,但它在 p4 跟座呈纵脊状,下臼齿跟座亦明显窄于三角座,下前尖相当退化等方面不同于池江南岭兽,个体也比池江种小得多(表 2)。已往报道过的发现在南雄盆地的南岭兽未定种(童永生,1982)虽尺寸小(m1 和 m2 长分别是 7.1 和 9.0mm,宽为 4.9 和 5.9mm),与本文记述的标本接近,但它的下臼齿下前尖不退化,下跟座短宽,两者仍有很大区别。

南岭兽为童永生(1979)所建,曾被 Lucas (1982)并入秀丽古脊齿兽(*Archaeolambda speciosa*)。黄学诗(1995)认为池江南岭兽虽然标本保存得十分不好,但仍可看出它的下犬齿断面呈圆形,较大,与 p1 之间有齿隙,这不仅不同于古脊齿兽属,而且也有别于科中的其他属种,应为一独立属。本文记述的标本不但说明南岭兽是个有效的属,而且这个属在晚古新世时已相当分化。

致谢 刘丽萍副研究员拍摄照片,杨明婉高级工程师绘制素描图,作者表示真诚感谢。

## NOTE ON TWO NEW MAMMALIAN SPECIES FROM THE LATE PALEOCENE OF NANXIONG, GUANGDONG

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**Key words** Nanxiong, Guangdong, Late Paleocene, Arctostylovida, Pantodonta

### Summary

Two new species of Mammalia from the Late Paleocene of Nanxiong Basin, Guangdong Province are described in the present paper. The new forms enrich the member of the type Nongshan

Formation of the Asian Land Mammal Age Nongshanian.

**Arctostylopida Cifelli, Schaff et McKenna, 1989**

**Arctostylopidae Schlosser, 1923**

**Bothriostylops Zheng et Huang, 1986**

**Bothriostylops medius sp. nov.**

(Fig. 1)

**Type** Fragmentary left and right upper jaws both with P4 ~ M3 and a left lower jaw with p2 ~ m3 (V 13504). All above specimens belong to same individual.

**Locality and horizon** Nearby Datang Town, Nanxiong County, Guangdong Province; upper part of Late Paleocene Nongshan Formation.

**Diagnosis** A species of *Bothriostylops* between *B. notios* and *B. progressus* in size and tooth structure. m3 much larger than that of above two species in proportion.

**Etymology** The species name shows the species is intermediate between *Bothriostylops notios* and *B. progressus* in both size and lower molar characteristics.

**Remarks** The new taxa is most similar to *Bothriostylops* in cheek teeth morphology among all genera of Arctostylopida. It is, however, bigger than *B. notios* but smaller than *B. progressus* in size. Its m3 is much larger than that of above two species in proportion.

The morphology of upper molars can be extrapolated to characterize the genus *Bothriostylops* as a whole because the specimen is more complete and belongs to the same individual with the lower cheek teeth.

**Pantodonta Cope, 1873**

**Pantolambodontidae Granger et Gregory, 1934**

**Nanlingilambda Tong, 1979**

**Nanlingilambda datangensis sp. nov.**

(Fig. 2)

**Type** A right lower jaw with p4 ~ m2, and broken c1, p2 and p3 (V 13505).

**Locality and horizon** Nearby Datang Town, Nanxiong County, Guangdong Province; lower part of Datang Member of Nongshan Formation.

**Diagnosis** A *Nanlingilambda* with narrow talonid, metaconid higher than paraconid of the lower cheek teeth, and smaller than *N. chijiangensis* in size.

**Etymology** The species name shows the place where the fossil was found.

**Remarks** Talonid of p4 in Nanxiong specimen is crest-like. Both trigonid and talonid of lower molars are V-shaped but the former is much higher than the latter. Above features indicate the Nanxiong specimen should belong to Pantolambodontidae of Pantodonta. Its c1 is rounded and robust, differing from all other genera of the family except *Nanlingilambda*. This genus was created by Tong (1979) and contains only single species—*N. chijiangensis*. *N. datangensis* sp. nov. differs from *N. chijiangensis* in having narrow talonid of the lower cheek teeth, higher metaconid of the lower molars and smaller size. *Nanlingilambda* is an available genus (Huang, 1995) though Lucas (1982) attributed it to *Archaeolambda speciosa*. The discovery of new form demonstrates *Nanlingilambda* is not only still an available genus but more divergent in the Late Paleocene of Asia.

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