

# 周口店第一地点蝙蝠动物羣的新材料\*

K. 科瓦爾斯基

李傳夔

(波兰科学院系統动物研究所) (中国科学院古脊椎动物与古人类研究所)

自 1934 年楊鍾健教授研究过周口店第一地点的蝙蝠化石后, 近 30 年来很少有人繼承这一工作。1936—37 年間, 賈兰坡教授在主持該地点的发掘时, 从第八层中又获得了大量的小哺乳动物化石材料, 其中包含有两种以前在第一地点未发现过的蝙蝠化石。通过对这两种新材料的研究不仅丰富了这一著名地点的动物羣的内容, 而且对該地点的蝙蝠动物羣也有了进一步的認識, 对前人工作中不足之处也能有所訂正和补充。尽管如此, 但在目前缺乏必要的比較材料的情况下, 试图对第一地点的蝙蝠动物羣做一全面系統的总结还是相当困难的, 本文也仅能在全部新旧材料的基础上, 着重叙述一些重要事实。

## 标本記述

### *Ia io* Thomas 1902

(插图 1, a—d)

?*Hesperopternus giganteus* Young, Young, C. C. 1934: On the Insectivora, Chiroptera, Rodentia and Primates other than *Sinanthropus* from Locality 1 at Choukoutien. pp. 37—39.

**材料:** 一破碎的左上颌骨(具  $P^3-M^3$ ), 8 个左下颌骨和 5 个右下颌骨, 除門齿外, 所有其他牙齿如数保存(古脊椎动物与古人类研究所编号 V. 2669)。

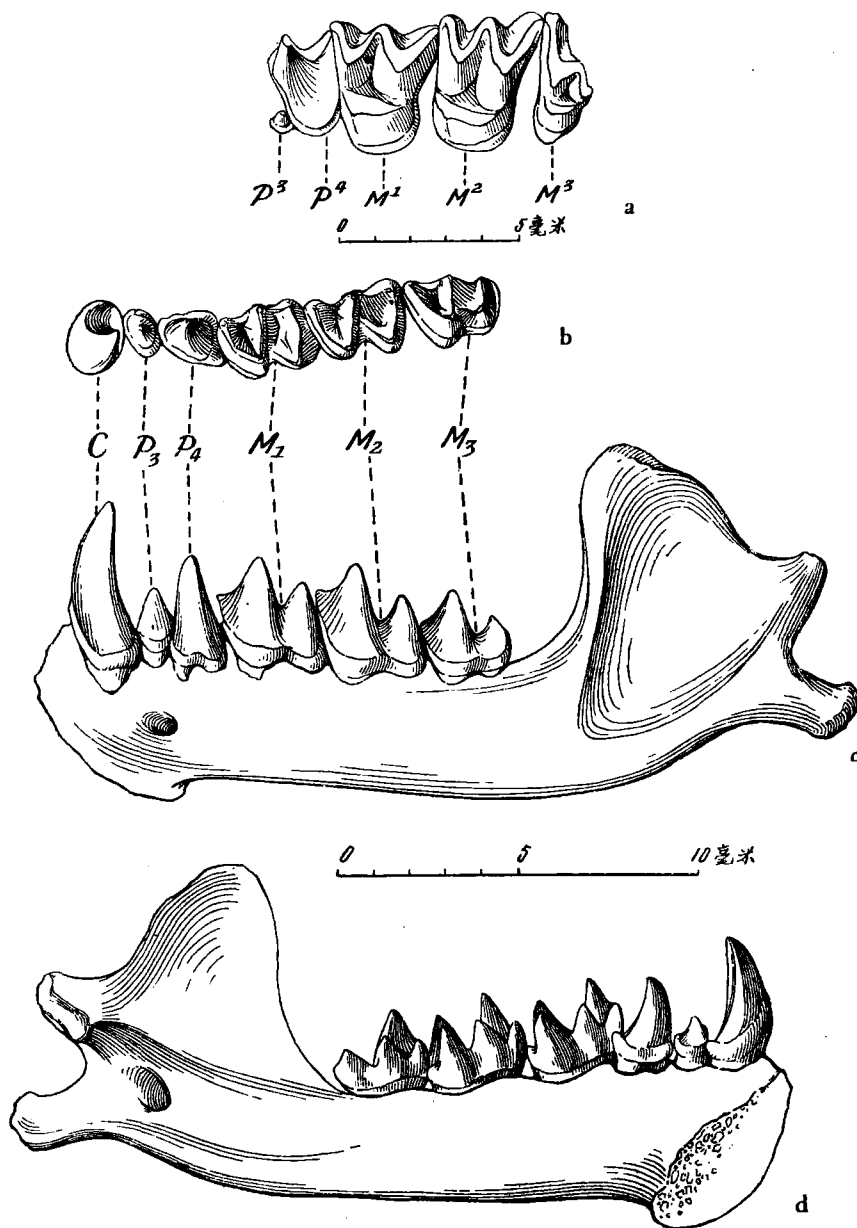
**描述:** 上颌骨的第三上前臼齿小, 完全被挤出于齿列之外, 使犬齿与第四上前臼齿直接接触(在我們的标本上保存了犬齿的部分齿槽)。

下颌的联合部呈大的卵圆形, 神經孔位于第三前臼齿之下。从仅有的一个保存了三个門齿齿根的标本上看, 門齿是紧密排列的。犬齿长, 略向后弯曲, 具有极为发育的齿带。第三下前臼齿小, 但排列在齿列中間。第四前臼齿和第一臼齿等高。第三臼齿的跟座无显著退化现象。

**測量:** 在唯一的上颌标本上,  $P^1-M^3$  的长度是 9.2 毫米,  $M^1-M^3$  是 7.6 毫米。对比該属的現生种标本 (*Ia longimana* Pen, 1962):  $P^1-M^3$  是 8.6—8.8 毫米,  $M^1-M^3$  是 7.0—7.1 毫米。

从上面描述和測量来看, 我們的标本与楊鍾健 1934 年描述的 ?*Hesperopternus giganteus* Young 和現生种 *Ia io* Thomas 都沒有甚么不同。另外在楊鍾健的专著中, 还提出师丹斯基描述过的“Chiroptera inc. sedis”也应归入 ?*Hesperopternus giganteus* Young 中。关于师丹斯基的材料仅有一犬齿和二件躯体骨骼碎片 (Zdansky, 1928, 頁 27)。从犬齿的形状和測量数字判断, 它显然不同于我們的标本, 而是一馬蹄蝠的犬齿, 可能是属

\* 1963 年 1 月 10 日收到。

插图 1 *Ia io* Thomas

- a. 左上颊齿列 (P<sup>3</sup>-M<sup>3</sup>), 冠面视。Left upper tooth-row (P<sup>3</sup>-M<sup>3</sup>), crown view.  
 b. 左下颊齿列 (C-M<sub>3</sub>), 冠面视。Left lower tooth-row (C-M<sub>3</sub>), crown view.  
 c. 左下颌骨, 外侧视。Left lower jaw, external view.  
 d. 同上, 内侧视。The same, internal view.

于在第一地点极为常见的 *Rhinolophus pleistocaenicus* Young。

*Ia* Thomas 属自 1902 年发现以后, 直到最近仅包含有一种即 *Ia io* Thomas, 该种的正型标本采自湖北南部长阳境内。1962 年彭鸿绶等报导了采自四川会东的一新种 *Ia longimana* Pen。该新种不同于 *Ia io* Thomas 处在新种个体稍大, 第一上门齿单尖。我

們把周口店的标本与新种 *Ia longimana* Pen 做过直接比較后,看不出两者之間有什么不同(測量見表 1)。而两現生种 *Ia io* Thomas 与 *Ia longimana* Pen 間的差別又无法运用在我們的化石标本上。鉴于两現生种的差异不大,甚至在深入研究后,可能看到两种間的不同仅是个体变异或地区变异的情况下,我們还是采用了老的种名,即 *Ia io* Thomas。

到目前为止, *Ia* Thomas 属的現生种类仅見于中国的湖北、四川两省。所有标本均采自山洞內, *Ia longimana* Pen 种的标本捕自四川会东城郊洞內,海拔高 1,700 米。*Ia* 属的分布区域从未向北远伸至北京附近。而这次却发现在周口店第一地点第八层中說明当时(更新世中期)周口店一带的气候比現在較为温暖。

### *Miniopterus schreibersii* (Kuhl, 1918)

(插图 2, a—c)

在第一地点第八层的材料中,我們还找到了另一种蝙蝠的 48 件下頷骨标本。从它們具有比較低而尖的喙突,有 3 个前臼齿,和第三前臼齿有两个齿根判断,我們的标本无疑地属于 *Miniopterus schreibersii* (Kuhl) 种。該种在楊鍾健教授 1934 年的論著中並沒有提到,但在他描述的 *Myotis* sp. 中有一左下頷骨 (c/c1002, 楊, 1934, 頁 37) 却是 *Miniopterus schreibersii* (Kuhl) 种。

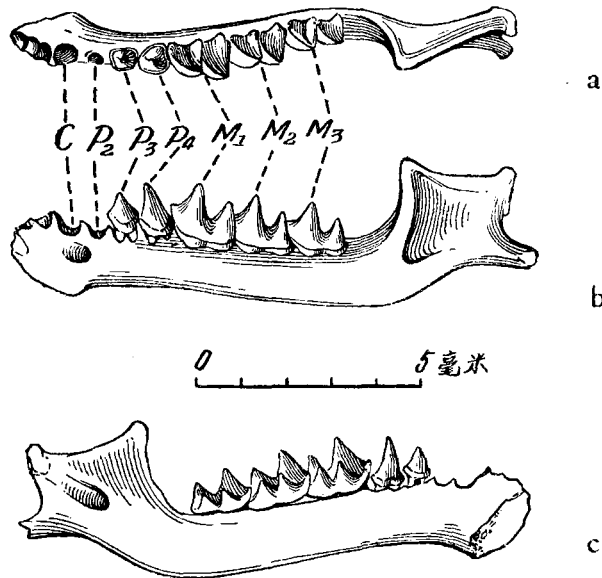


插图 2 *Miniopterus schreibersii* (Kuhl) 左下頷骨 (left lower jaw)

a. 冠面視 (crown view)。b. 外側視 (external view)。

c. 內側視 (internal view)。

茲將 48 件下頷骨中保存較好的标本測量如表 2 (单位: 毫米)(古脊椎动物与古人类研究所編号 V. 2670)。

*Miniopterus schreibersii* (Kuhl) 的地理分布从欧洲到日本和从北非、錫兰直到澳大利亚北部,也广泛分布于中国境內(在北京附近也曾見到)。在地层上,在欧洲它发现于上新

表 1

下颌骨(单位:毫米) Mandibles (in mm):	Fossil specimens ( <i>Ia io</i> Thomas V. 2669)														<i>Ia longimana</i> Pen. 1962 Recent specimens			
	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	17553	17554	17555	17556	17557
下颌骨全长 Total length of mandible	22.1							22.0	21.8			21.7		22.1	21.5	20.8	22.8	20.9
喙突高 Height of proc. coronoideus	8.3	7.9	8.5								8.4			7.3	7.3	7.3	7.5	7.5
下颌骨高(在 M <sub>1</sub> 内侧) Height of mand. body inside, measured under M <sub>1</sub>	3.7	3.6	3.6	3.7	3.9	3.8	3.8	3.6	3.8	3.6	3.4	3.5	3.6	3.8	3.7	3.4	3.8	3.5
齿列长(自 I <sub>1</sub> 齿槽前缘至 M <sub>3</sub> 齿槽后缘) Length of tooth row (from the front of the alveola of I <sub>1</sub> to the posterior border of the alveola of M <sub>3</sub> )	12.9							13.1	13.0					12.6	13.0	12.7	13.2	12.4
C—M <sub>3</sub>	11.9							12.4	11.5		12.6			11.7	11.8	11.9	11.9	11.7
P <sub>4</sub> —M <sub>3</sub>	9.5	9.6		9.9				9.7	9.5		9.4			9.0	9.4	9.0	9.3	9.1
M <sub>1</sub> —M <sub>3</sub>	8.2	8.4	8.0	8.5	8.3	8.5		8.2	7.8	8.3	7.6			7.7	8.1	7.5	7.9	7.5

表 2

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	No. 15
下颌骨全长 Total length of mandible	11.9		12.2	11.6	12.2	11.8	11.8			12.3	11.9			11.9	12.4
喙突高 Height of proc. coronoideus	3.2		3.3	3.3		3.2		3.1			3.3	3.3		3.2	3.2
下颌骨高(在 M <sub>1</sub> 内侧) Height of mandible body inside under M <sub>1</sub>	1.5	1.7	1.6	1.5	1.6		1.5	1.7	1.7	1.7	1.4	1.7	1.5	1.4	1.5
齿列长(自 I <sub>1</sub> 齿槽前缘至 M <sub>3</sub> 齿槽后缘) Length of tooth-row (from front of alveola of I <sub>1</sub> to posterior alveola of M <sub>3</sub> )	8.0	7.9	8.2	7.9	7.9	7.8	7.7		7.8	8.1	7.9		7.8	7.9	7.9
C <sub>1</sub> —M <sub>3</sub> 长 (Length)	6.9	6.9	7.1	6.5	6.8	6.6	6.6		6.7	7.2	6.5		7.0	6.8	6.7
P <sub>4</sub> —M <sub>3</sub> 长 (Length)	5.1	4.9	5.0	4.9	4.9	5.0	4.8	4.9	4.8	5.1	4.9	5.0	4.9	4.9	4.8
M <sub>1</sub> —M <sub>3</sub> 长 (Length)	4.3	4.2	4.4	4.1	4.2	4.3	4.1	4.1	4.1	4.4	4.0	4.3	4.2	4.2	4.2

世到更新世 (K. Kowalski, 1956)。

在第一地点第八层的材料中, 另有許多馬蹄蝠类 *Rhinolophus pleistocaenicus* Young 和至少两种不同的 *Myotis* Kaup。但在目前缺乏对比材料的情况下, 很难予以准确的鉴定。另外, 在新材料中我們还发现有与 *Rhinolophus cornutus* Temminck 大小相仿的小型 *Rhinolophus* Lacépède 化石。

对比周口店第一地点和第三地点(裴文中, 1936)的蝙蝠动物羣可以看出一个很有意思的問題, 即二动物羣中所含的蝙蝠种类有明显的不同。*Rhinolophus* Lacépède 属在第一地点为 *R. pleistocaenicus* Young 而第三地点则为个体稍小的 *R. cf. ferrum-equinum* Schreber。第一地点的大型蝙蝠是 *Ia io* Thomas 而在第三地点则为另种大型蝙蝠 *Hipposideros* sp. 所代替。所有这些情况表明两地点間不仅地质年代不同, 在气候上第一地点也可能比第三地点稍暖。但在未做深入研究之前, 这也只能是一种推测。

最后, 应当順便指出, 在楊鍾健教授描述的周口店第二地点的“Chiroptera indet.”标本不是蝙蝠, 而是一鼯鼯类的下颌骨后部, 它可能属于 *Crocidura wongi* Pei。

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## REMARKS ON THE FAUNA OF BATS (CHIROPTERA) FROM LOCALITY 1 AT CHOUKOUTIEN

K. KOWALSKI

(Institute of Systematic Zoology  
Polish Academy of Sciences)

LI CHUAN-KUEI

(Institute of Vertebrate Palaeontology and  
Palaeoanthropology, Academia Sinica)

The fossil bats from Locality 1 (*Sinanthropus*-Locality) at Choukoutien were described by C. C. Young in 1934. Since that time an abundant collection of small mammals have been gathered at this locality from an exactly determined horizon, that is, layer 8. The specimens of bats in this collection permit us to widen and correct the

picture of the bat-fauna of this famous fossil locality, in some details. Before the chiropterological material is revised, which is a difficult task owing to the lack of comparative material, it may be useful to discuss some of the more important facts. Both the recorded material of bats published from Locality 1 and the collection mentioned above are in the possession of the Institute of Vertebrate Palaeontology and Palaeoanthropology of the Academia Sinica in Peking.

### *Ia io* Thomas, 1902

(fig. 1, a—d)

1902 *Ia io* n. g., n. sp. Thomas O., On two new mammals ... p. 164.

1934 ?*Hesperopternus giganteus* Young (sp. nov.): On the Insectivora, Chiroptera, ... 37—39, Pl. III, figs. 7—9.

Among the specimens collected from layer 8 one fragment of upper jaw with P<sup>3</sup>—M<sup>3</sup> in place, as well as 8 left and 5 right Lower jaws, has been found. All the lower teeth are represented, except the incisors.

**Description:** The anterior upper premolar is minute and completely displaced from the tooth-row so that the canine (a part of the alveola of which is preserved in our specimen) was in contact with P<sup>4</sup>.

In the lower jaw the symphysis is broadly oval. The foramen mentale is situated below the anterior premolar. Only the roots of three incisors are preserved in one of our specimens; these teeth were set tightly together. The canine is long, slightly curved backwards, with a strongly developed cingulum. Anterior premolar small, but exactly in tooth-row. Posterior premolar as high as the first molar. Talonid of M<sub>3</sub> not noticeably reduced.

**Dimensions:** Length of P<sup>4</sup>—M<sup>3</sup> in the uniquely preserved upper jaw is 9.2 mm, that M<sup>1</sup>—M<sup>3</sup> is 7.6 mm (the dimensions in the recent specimens of *Ia longimana* Pen, from China are 8.6—8.8 mm and 7.0—7.1 mm) (see Chinese text).

Our specimens are identical with the material described by C. C. Young (1934) from Locality 1 and determined by him provisionally as “?*Hesperopternus giganteus*” Young. At the same time they seem to be identical with the living species *Ia io* Thomas.

Among the synonyms of his species C. C. Young (1934) cites “Chiroptera inc. sedis” from the paper of O. Zdansky (1928).

The remains described under this name by Zdansky consist of one canine (Pl. I, figs. 49—50 in Zdansky, 1928) and two fragments of postcranial skeleton. As to the canine its dimensions and shape indicate that it does not represent to our form. It is a canine of a horseshoe bat, probably of *Rhinolophus pleistocaenicus* Young, which is common in Locality 1.

Genus *Ia* Thomas contained till recently only one species, *Ia io* Thomas, the holotype of which was collected at Changyang, Southern Hupei. In 1962 a new species, *Ia longimana* Pen was described (Pen H. S., Kao Y. T. & others 1962) from Hueitung in Szechuan. It differs from the typical species of the genus in slightly larger dimensions of body and in the shape of the first upper incisor which is here unicuspid, being bicuspid in *Ia io* Thomas. We had an opportunity to compare our fossil specimens only with specimens of *Ia longimana* Pen with which they are identical. The above-mentioned characters distinguishing the two recent species cannot be studied on our fossil material. We use the older specific name *Ia io* because the differences of the two living forms

seem to be slight and it is very probable that at further investigation they will prove to be the result of an individual or geographical variability of one species.

Genus *Ia* Thomas is known from the provinces Hupei and Szechuan in China. All the specimens were collected in caves, of which one, in Hueitung is situated at altitude of 1700 m. The distribution of the genus does not range as far to the North as the vicinity of Peking. Its presence at Loc. 1 at Choukoutien suggests a climate in any case slightly warmer than it is at present.

### ***Miniopterus schreibersii* (Kuhl, 1918)**

This species, not mentioned by C. C. Young (1934) from Locality 1, was represented in our material from layer 8 by 48 lower jaws. In addition, one lower jaw from the older material determined as "*Myotis* sp." belongs also to this species.

The low and pointed processus coronoideus; the presence of 3 premolars- of which the middle one has two roots, permit us to ascribe these jaws to *Miniopterus schreibersii* (Kuhl.)

The dimensions of some better preserved specimens are as follow (see chinese text).

*Miniopterus schreibersii* (Kuhl) is distributed from Europe to Japan and on the south to North Africa, Ceylon and Northern Australia. It is widely distributed in China and was also caught in the Peking region. Its fossil remains are known from the Pliocene and Pleistocene of Europe (K. Kowalski, 1956).

In the material from layer 8 at Locality 1 numerous specimens of a horse-shoe bat identical with *Rhinolophus pleistocaenicus* Young were found along with the remains rests of at least two different species of *Myotis* Kaup. Their specific determination is not possible without extensive comparative materials. Here we also found a very small form of the genus *Rhinolophus* Lacépède, having the dimensions equal to those of *R. cornutus* Temminck.

It is interesting to compare the bat-fauna of Locality 1 with that of Loc. 3 at Choukoutien described by W. C. Pei (1936) because they show marked differences. *Rhinolophus* Lacépède is represented at Loc. 3 by a form differing from *R. pleistocaenicus* Young in its smaller dimensions. *Ia io* Thomas is replaced at Loc. 3 by another large bat, a representative of the genus *Hipposideros* Gray etc. All these indicate a difference not only in the geological age but also in the climate, this being warmer for Loc. 3. Until a detailed study of the whole bat material can be done this will be only a mere supposition.

It is worth mentioning that a specimen from Locality 2 at Choukoutien (C. C. Young—1932), determined as "Chiroptera indet" is a posterior part of the lower jaw of a soricid, probably *Crocidura wongi* Pei.