周口店第一地点蝙蝠动物群的新材料

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自1934年杨时健教授研究过周口店第一地点的蝙蝠化石后，近30年来很少有人继承这一工作。1936—37年间，贾兰坡教授在主持该地点的发掘时，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地点的动物群的内容，而且对该地点的蝙蝠动物群也有进一步的资料。对前人工作中不足之处也能有所订正和补充。尽管如此，在目前缺乏必要的比较材料的情况下，试图对第一地点的蝙蝠动物群做一全面系统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 记 述

Ia io Thomas 1902
(插图1，a—d)

Hesperopterus 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 P3—M3），8个左下颊骨和5个右下颌骨，除门齿外，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：上颌骨的第三前上臼齿小，完全被挤出于齿列之外，使犬齿与第四前上臼齿直接接触（在我们的标本上保存了犬齿的齿部齿槽）。

下颌的联合部呈大卵圆形，神经孔位于第三前臼齿之下。从仅有的一个保存了三个门齿齿根的标本上看，门齿是紧密排列的。犬齿短，略向后弯曲，具有极发育的齿带。第三下前臼齿小，但排列在齿列中段。第四前臼齿和第一臼齿等高。第三臼齿的根部无显著退化现象。

测量：在唯一的上颌标本上，P3—M3的长度是9.2毫米，M1—M3是7.6毫米。对比该属的现生种标本（Ia longimanana Pen, 1962）：P1—M3是8.6—8.8毫米，M1—M3是7.0—7.1毫米。

从上面描述和测量来看，我们的标本与杨时健1934年描述的Hesperopterus giganteus Young和现生种Ia io Thomas都没有什么不同。另外在杨时健的专著中，还提出师丹斯基描述过的“Chiroptera inc. sedis”也应归入Hesperopterus 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, 页27）。从犬齿的形状和测量数字判断，它显然不同于我们的标本，而是一马蹄蝠的大齿，可能是属
于在第一地点极为常见的 Rhiholophus pleistoacaenicus 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县境内。1962 年彭鸿枚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 做过直接比较后，看不出两者之间有什么不同（测量见表 1）。而两现生种 *Ia io* Thomas 与 *Ia longimana* Pen 间的差別又无法运用在我们的化石标本上。鉴于两遍生的差異不大，甚至在深入研究后，可能看到两遍的差異仅是个体变异或地区变異的情况下，我們还是采用了老的种名，即 *Ia io* Thomas。

到目前为止，*Ia Thomas* 属的现生种类仅见于中国的湖北、四川两省。所有标本均采自山洞内，*Ia longimana* Pen 种的标本捕自四川会东坡野洞内，海拔高 1,700 米。*Ia* 属的分布区域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記载当时（更新世中期）周口店一带的气候比現在较为温暖。

**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 件下顎骨标本。从它們具有比较低而尖的喙突，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。该种在楊鍾健教授 1934 年的論著中并沒有提到，但在他描述的 *Myotis sp.* 中有一左下顎骨（c/c1002, 杨，1934, 页 37）却是 *Miniopterus schreibersii* (Kuhl) 种。

![插图 2](image)

**Miniopterus schreibersii** (Kuhl) 左下顎骨（left lower jaw）

a. 冠面觀（crown view）。 b. 外侧観（external view）。 c. 内侧観（internal view）。

茲将 48 件下顎骨中保存较好的标本测量如表 2（单位：毫米）（古脊椎动物与古人类研究所编号 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内（在北京附近也曾見到）。在地层上，在欧洲它发现于上新
### 表 1

<table>
<thead>
<tr>
<th>下颌骨（单位：毫米）</th>
<th></th>
<th>Fossil specimens (<em>Laio</em> Thomas V. 2669)</th>
<th><em>La longimans</em> Pen. 1962 Recent specimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandibles (in mm):</td>
<td>No. 2</td>
<td>No. 3</td>
<td>No. 4</td>
</tr>
<tr>
<td>下颌骨全长 Total length of mandible</td>
<td>22.1</td>
<td>22.0</td>
<td>21.8</td>
</tr>
<tr>
<td>咽突高 Height of proc. coronoides</td>
<td>8.3</td>
<td>7.9</td>
<td>8.5</td>
</tr>
<tr>
<td>下颌骨高（在 M1 内侧）Height of mand. body inside, measured under M1</td>
<td>3.7</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>齿列长 (自 I1 咀嚼前缘至 M4 咀嚼后缘) Length of tooth row (from the front of the alveola of I1 to the posterior border of the alveola of M4)</td>
<td>12.9</td>
<td>13.1</td>
<td>13.0</td>
</tr>
<tr>
<td>C—M3</td>
<td>11.9</td>
<td>12.4</td>
<td>11.5</td>
</tr>
<tr>
<td>P1—M8</td>
<td>9.5</td>
<td>9.6</td>
<td>9.9</td>
</tr>
<tr>
<td>M1—M3</td>
<td>8.2</td>
<td>8.4</td>
<td>8.0</td>
</tr>
</tbody>
</table>

### 表 2

<table>
<thead>
<tr>
<th>下颌骨全长 Total length of mandible</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
<th>No. 6</th>
<th>No. 7</th>
<th>No. 8</th>
<th>No. 9</th>
<th>No. 10</th>
<th>No. 11</th>
<th>No. 12</th>
<th>No. 13</th>
<th>No. 14</th>
<th>No. 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>下颌骨全长 Total length of mandible</td>
<td>11.9</td>
<td>12.2</td>
<td>11.6</td>
<td>12.2</td>
<td>11.8</td>
<td>11.8</td>
<td>12.3</td>
<td>11.9</td>
<td>11.9</td>
<td>12.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>咽突高 Height of proc. coronoides</td>
<td>3.2</td>
<td>3.3</td>
<td>3.3</td>
<td>3.2</td>
<td>3.1</td>
<td>3.3</td>
<td>3.3</td>
<td>3.2</td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>下颌骨高（在 M1 内侧）Height of mandible body inside under M1</td>
<td>1.5</td>
<td>1.7</td>
<td>1.6</td>
<td>1.5</td>
<td>1.6</td>
<td>1.5</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
<td>1.4</td>
<td>1.7</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>齿列长 (自 I1 咀嚼前缘至 M4 咀嚼后缘) Length of tooth row (from the front of the alveola of I1 to the posterior alveola of M4)</td>
<td>8.0</td>
<td>7.9</td>
<td>8.2</td>
<td>7.9</td>
<td>7.9</td>
<td>7.8</td>
<td>7.7</td>
<td>7.8</td>
<td>8.1</td>
<td>7.9</td>
<td>7.8</td>
<td>7.9</td>
<td>7.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1—M3 长 (Length)</td>
<td>6.9</td>
<td>6.9</td>
<td>7.1</td>
<td>6.5</td>
<td>6.8</td>
<td>6.6</td>
<td>6.6</td>
<td>6.7</td>
<td>7.2</td>
<td>6.5</td>
<td>7.0</td>
<td>6.8</td>
<td>6.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1—M4 长 (Length)</td>
<td>5.1</td>
<td>4.9</td>
<td>5.0</td>
<td>4.9</td>
<td>4.9</td>
<td>5.0</td>
<td>4.8</td>
<td>4.9</td>
<td>4.8</td>
<td>5.1</td>
<td>4.9</td>
<td>5.0</td>
<td>4.9</td>
<td>4.9</td>
<td>4.8</td>
</tr>
<tr>
<td>M1—M3 长 (Length)</td>
<td>4.3</td>
<td>4.2</td>
<td>4.4</td>
<td>4.1</td>
<td>4.2</td>
<td>4.3</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.4</td>
<td>4.0</td>
<td>4.3</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
</tr>
</tbody>
</table>
世到更新世（K. Kowalski, 1956）。

在第一地点第八层的材料中，另有许多蝙蝠类 *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，在新材料中我们还发现有与 *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问题。即二生物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一种大型蝙蝠 *Hipposideros* sp. 所代替。所有这些情况表明两地点间不仅地质年代不同，在气候上第一地点也可能比第三地点暖和。但在未做深入研究之前，这也只能是一种推测。

最后，应该顺便指出，在杨锺健教授描述的周口店第二地点的“Chiroptera indet.”标本不是蝙蝠，而是一鸵类的下颌骨后部，它可能属于 *Crocidura wongi* Pei。

参考文献

彭锦文、高耀亭、陆长坤、斋神建、陈庆福，1962：西南和云南西北部兽类的分类研究。动物学报，第十五卷，增刊号，105—132页。


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

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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 com-
parative 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 Palaeoan-
thropology of the Academia Sinica in Peking.

*La io* Thomas, 1902

(Fig. 1, a—d)

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

1934 "Hesperopterus 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 $P^3-M^3$ 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 $P^4$.

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 $M_3$ not noticeably reduced.

**Dimensions:** Length of $P^4-M^3$ in the uniquely preserved upper jaw is 9.2 mm, that $M^2-M^3$ is 7.6 mm (the dimensions in the recent specimens of *la 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 "*Hesperopterus giganteus*" Young. At the same time they seem to be identical with the living species *la 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 *la* Thomas contained till recently only one species, *la io* Thomas, the holo-
type of which was collected at Changyang, Southern Hupei. In 1962 a new species, *la 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 dimen-
sions of body and in the shape of the first upper incisor which is here unicuspid, being bicuspid in *la io* Thomas. We had an opportunity to compare our fossil specimens only with specimens of *la 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 *la 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 Hucitung 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 coronoides; 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.