河北赤城第四紀哺乳動物化石

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化石產地位于赤城西南約 2 公里之南溝嶺 (插圖 1 及圖版 I)。

1956 年 5 月,河北省赤城縣在白河右岸興修小型農業灌溉水利工程中,發現了第四紀哺乳動物化石。當地地方政府得悉後,即將這一情況及一部分化石報呈河北省文化局。省文化

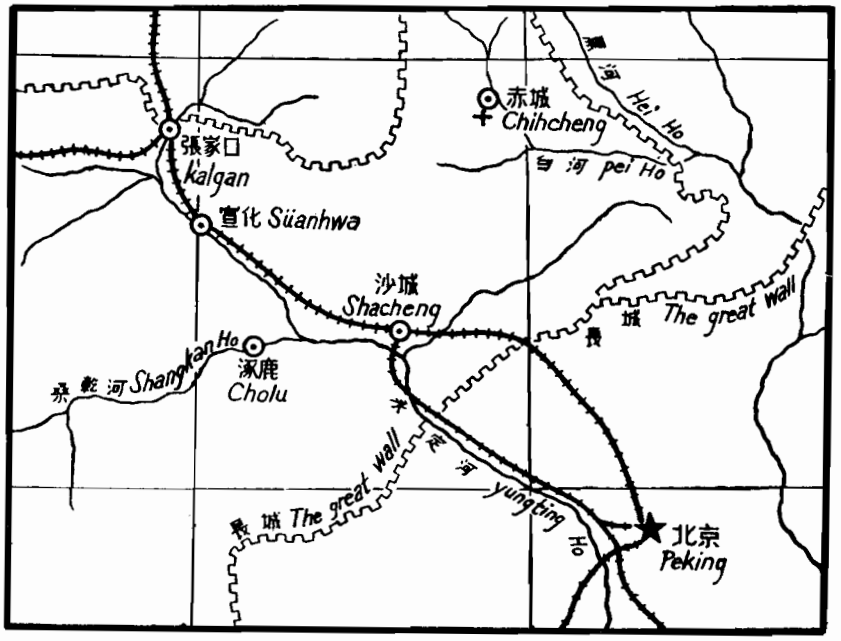

插圖 1.　赤城化石地點略圖

Sketch Map of the Fossil Locality of Chihcheng.

局遂將這些化石送至中國科學院古脊椎動物研究室。經我們觀察後,認爲這些材料頗有研究價值。因此,中國科學院古脊椎動物研究室派翟人杰隨同河北省文化局孟皓同志前往該地作進一步調查,並發掘和蒐集了許多化石資料。

我們感謝孟皓同志和赤城縣人民委員會文化科的同志在工作中給我們的協助。

產化石地層是一種紅色細砂質土。上爲表土，下爲砂層及礫石層。其層位如下(插圖 2)：

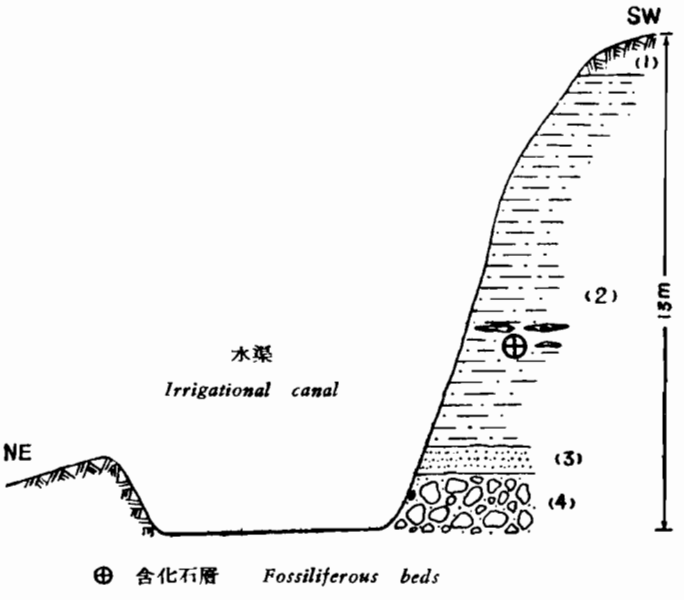

插圖 2. 赤城南溝嶺化石層剖面圖

The Section of Fossiliferous Deposits of Nankouling, Chihcheng.

(1) 表土：厚 0.5—1 米不等。灰黑色。

(2) 紅色細砂質土：厚約十餘米。上部顏色較深，下漸淺。夾泥灰岩之凸鏡體。化石即產於此種砂土中。

(3) 砂層：厚不足半米。層次清楚。砂粒成分主要爲石英、長石等。分佈範圍不廣。

(4) 礫石層：礫石主要爲花崗片麻岩、石英岩等組成。礫徑大小不一。分選甚差。分佈範圍亦不廣。未見底。

化 石 記 述

下面所記述的化石，雖然都很破碎，但代表許多屬種。經我們研究的結果，全部化石計有 5 目，其中能鑑定出種者有 8 種，由於材料的限制不能鑑定出種者有 5 種。

狼 (*Canis* sp.)

由兩塊破碎的下顎骨爲代表 (編號 *V. 1652*)。按其犬齒的大小約與華北各地中、後更新統地層中習見的狼 (*Canis lupus* L.) 相近。

小 熊 (*Ursus angustidens* Zdansky)

由兩塊破碎的上顎骨爲代表 (編號 *V. 1653*)。左上顎骨有第四前臼齒至第二臼齒保存。右上顎骨有第一及第二臼齒保存。第二臼齒的齒面的構造平坦，後跟部窄小，內扣帶顯

明，長 25 寬14 毫米。依其大小與性質觀察，和屬於中更新統的周口店第一地點（即中國猿人產地）所發現之小熊十分接近。

棕 熊 (*Ursus arctos* L.)

由幾塊破碎的上、下顎骨爲代表 (編號 *V. 1654*)。牙齒比上述的小熊爲大。上第二臼齒長 33 毫米，寬 18 毫米。後跟部收縮，後緣呈圓形，內扣帶發達。根據此種性質觀察與周口店第 1 地點及河南安陽全新統地層中所發現的棕熊相同，但比周口店者略小。

洞穴鬣狗 (*Hyaena ultima* Matsumoto)

只由一顆殘破的下第四前臼齒爲代表 (編號 *V. 1655*)。齒冠長 26.7 寬 16.0 毫米。前副尖小，後副尖大，後扣帶發達呈斜脊形。根據此種特徵可以決定爲洞穴鬣狗。

此種動物在中國分佈很廣，在廣西、雲南、四川及周口店的中更新統地層中都有發現，在陝北的薩拉烏蘇河以及周口店山頂洞的後更新統的地層中依然存在。

大丁氏田鼠 (*Siphneus epitingi* Teil. & Pei)

(圖版 III, 圖 2)

由兩面大小不甚相同的下顎骨爲代表 (編號 *V. 1656*)。小者保存良好。大者前後部分殘破，第 1 及第 2 臼齒保存，第三臼齒雖已殘破，但由其斷裂的面尙可識別其形狀。

牙齒褶曲傾斜不大，第三臼齒退縮。按其大小和特徵與周口店第 13 地點的大丁氏田鼠相比十分相近，因之認爲同種。此兩面下顎骨雖然特徵相當一致，但大小不甚相同或爲年齡上的關係。

泥河灣期（下三門或維拉方期＝早更新統）有丁氏田鼠而未見此大丁氏田鼠。此種大丁氏田鼠亦未見于周口店第 1 地點，很可能爲中更新統最下部的代表動物。

梅氏犀牛 (*Rhinoceros mercki* Jaeger)

(圖版 II, 圖 1, 2)

材料有被擠壓的相連接的下顎骨。右面水平枝較完整，保存有第三前臼齒至第三臼齒；左面只有水平枝的前部，保存有第三及第四前臼齒。牙齒均磨蝕甚深。此外尙有四顆零星的牙齒：一爲被擠壓的上第二臼齒，一爲下第四前臼齒，一爲下左第一臼齒，一爲下第三乳齒 (編號 *V. 1657*)。

上第二臼齒的齒冠相當高，前後葉爲寬溝所隔開，齒外壁平坦而略曲。小突顯著，小脊和前小突細弱。原尖呈圓形，雖與次尖隔開甚遠但底部相連。前扣帶發達。

下臼齒的外壁特別向外隆凸，只有前葉略平。後扣帶弱小而形成一個傾斜之脊。

由此特徵決定其爲梅氏犀。此種犀牛最早見於早更新統的泥河灣地層中，至中更新統周口店洞穴堆積中，如第 1、2、9 及 13 等地點依然時常見到，但不見於後更新統或"黃土"層中。

三門馬 (*Equus sanmeniensis* Teil. & Piv.)

(圖版 II, 圖3—5)

由兩件帶有乳齒的下顎及幾顆零星的上、下牙齒和一件第三掌骨爲代表(編號 *V. 1658*)。

牙齒巨大。上第一乳前臼齒保存完好，齒鋒扁銳。第二前臼齒的前尖遮蓋了第一乳前臼齒外壁的大部分。原尖扁而長，由內側之深溝將原尖分爲前後兩個小葉。釉質褶曲中等。下第一乳前臼齒呈錐形，下第二至第四乳齒釉質褶曲特別簡單。第三掌骨粗大。

此種大型的馬最早見于泥河灣地層中，至周口店時期的地層中仍然時常見到，但不見於"黃土"層中。

李氏野猪 (*Sus* cf. *lydekkeri* Zdansky)

由一種巨型的上、下顎骨碎塊爲代表 (編號 *V. 1659*)。由性質及大小上看與周口店第 1 地點發現之李氏野猪相同。

斑 鹿 (*Pseudaxis* sp.)

由一段破碎的枝角和幾塊殘破的下顎骨爲代表 (編號 *V. 1660*)。下顎骨不腫厚，牙齒長而窄，臼齒前後兩葉的外壁稜角特別隆凸。其中一件下顎骨所保存的三顆臼齒總長爲 65 毫米，可與周口店第 1 地點之葛氏斑鹿相比。葛氏斑鹿的三顆臼齒的總長爲 59—66 毫米。

扁角腫骨鹿 (*Euryceros flabellatus* Teilhard)

(圖版 II, 圖 6; 圖版 III, 圖 1)

由一段約 150 毫米長的一段角幹，四件上顎骨碎塊，八件下顎骨碎塊和兩顆零星的牙齒爲代表 (編號 *V. 1661*)。殘破的角爲一幼年個體，尙未發育成熟。主幹略扁，兩端均有被大醬齒類所咬啃的痕跡。主幹由底環起卽向後作急驟的傾斜。

上齒大而寬。

下顎骨腫厚，但腫厚的程度不如周口店第 1 地點的腫骨鹿 (*E. pachyosteus*) 爲甚。水平枝比較細長，在第三臼齒附近的下顎骨斷面呈橢圓形，下顎骨指數

$$\left(\frac{\text{第三臼齒以下部分的顎骨最寬}}{\text{第三臼齒以下部分的顎骨內面最高}}\times 100\right)\text{爲}$$

71。由下顎骨的整體來看與周口店第 13 地點的扁角腫骨鹿相同。第 13 地點的扁角腫骨角的下顎骨指數爲 75，而第 1 地點的指數則達到 90。

在我們這次所發現的標本中，另有一件鹿的下顎骨，雖然也相當碩厚，但比上述的下顎骨要高得多，而且牙齒的外壁也比較平坦，或非同種，但由於材料甚少，難作詳細的記述。

轉角羚羊 (*Spiroceros* sp.)

由一件保存有第 1 至第 3 臼齒的左上顎骨碎塊和一件殘破而保存有第二前臼齒至第三臼齒的左下顎骨爲代表 (編號 *V. 1662*)。三顆上臼齒的總長爲 65.5 毫米，下第二前臼齒至第四前臼齒長 27.5 毫米，下第一臼齒至第三臼齒長 64.5 毫米，由第二前臼齒至第三臼齒的

總長爲 92 毫米。根據這些測量數字得知它比周口店第 1 地點的裴氏轉角羚羊(*Spiroceros peii*)爲小,裴氏轉角羚羊由下第二前臼齒至第三臼齒的總長可達 100 毫米。

牛 科 (Bovidae indet.) 屬種不能鑑定

只有一塊下顎骨的前部保存 (編號 *V. 1663*)。不能作出屬種的鑑定。

象 (*Elephas* sp.)

只有一個殘破的右脛骨 (編號 *V. 1664*)。不能作出種的鑑定。

結 論

根據上述的化石得出下列的結論:

(1) 大丁氏田鼠和扁角腫骨鹿,均爲中更新統下部地層中的產物,過去僅見於周口店第 13 地點的洞穴堆積中。今在赤城南溝嶺紅色土層中有此發現,證明其時代與周口店第 13 地點相同。

(2) 在此地點發現梅氏犀和三門馬。此兩種動物最早見於早更新統的泥河灣地層中,至中更新統的周口店第 1 地點依然存在,但不見於後更新統——"黃土" 層中,證明此地的紅色土層不會晚於周口店第 1 地點。周口店第 1 地點的動物羣雖代表了中更新統的哺乳動物性質,但由於不見大丁氏田鼠和扁角腫骨鹿,其時代應比周口店第 13 地點洞穴堆積和赤城南溝嶺的紅色土堆積爲新。南溝嶺的地層應爲中更新統的最下部。

(3) 這一地點的化石雖然代表的屬種不算太多,而且化石保存也很破碎,但還有它們一定的重要性。因爲代表這一時期的動物除在周口店第 13 地點的洞穴堆積中有所發現外,在紅色土堆積中還是首次的發現。因之對我國華北紅色土層的時代劃分上增加了一些新的證據。

參 考 文 獻

(References)

[1] Matthew, W. D. and Granger, W., 1923. New Fossil Mammals from the Pliocene of Szechuan Province, China. *Bull. Amer. Mus. Nat. Hist.*, **40**(8), 574.

[2] Pei, W. C., 1930. On a Collection of Mammalian Fossils from Chiachiashan near Tangshan. *Buli. Geol. Soc. China*, **9**, 371—377.

[3] ————, 1934. On the Carnivora from Locality 1 of Choukoutien. *Pal. Sin.*, Ser. C, Vol. 8, Fasc. 1.

[4] Teilhard de Chardin, P., 1936. Fossil Mammals from Locality 9 of Choukoutien. *Pal. Sin.*, Ser. C, Vol. 7, Fasc. 4.

[5] Teilhard de Chardin, P. and Pei, W. C., 1941. The Fossil Mammals from Locality 13 of Choukoutien. *Pal. Sin.*, New Ser. C, No. 11, Whole Ser. No. 126.

[6] Teilhard de Chardin, P. and J. Piveteau, 1930. Les Mammiferes fossiles de Nihowan. *Annales de Paléontologie*, t. 19.

[7] Teilhard de Chardin, P. and Young, C. C., 1930. Preliminary Observations on the Pre-Loessic and Post-Pontian Formations in Western Shansi and Northern Shensi. *Mem. Geol. Survey China*, Ser. A, No. 8.

[8] Young, C. C., 1934. On the Insectivora, Chiroptera, Rodentia ...from Locality 1 of Choukoutien. *Pal. Sin.*, Ser. C, Vol. 8, Fasc. 3.

[9] ————, 1935. Miscellaneous Mammalian Fossils from Shansi and Honan. *Pal. Sin.*, Ser. C, Vol. 9, Fasc. 2.

QUATERNARY MAMMALIAN FOSSILS FROM CHIHCHENG, HOPEI

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The fossil locality is situated at Nankouling about 2 km south-west of Chihcheng City. During the digging of a new small canal for irrigating the farming land on the right bank of Pei Ho (White River), considerable amount of Mammalian fossil was excavated.

In May 1956, Mr. Meng Hao of the Bureau of Cultural Affairs of Hopei collected some fossils from the locality and sent them to our Laboratory. We were so much interested in these materials that a further investigation of the locality was arranged. For this purpose the junior writer paid a visit to the fossil locality with Mr. Meng in the same month.

The stratigraphical series of this fossil locality, beginning from the top, are as follows (Plate I and Text-figure 1):

(1) Surface soil, dark-grey in color, thickness 0.5—1.0 m.

(2) Reddish fine clay, usually containing some lens of sand and grey marl. It attains a thickness of about 10 m and tends to become coarser and lighter in color toward the lower part. The animal remains were found in the middle part of this layer.

(3) Stratified sandy layer, thickness about 0.5 m.

(4) Below the stratified sandy layer, occasionally a layer of gravels is present, consisting of well-rounded and poorly sorted pebbles of Granogneiss and Quartzite. The bottom of the gravel layer is not exposed.

DESCRIPTION OF FOSSILS

The bones themselves are very fragmentary, but they are well fossilized and indicate a large number of species. The following thirteen forms are recorded.

I. CARNIVORA

Canis sp.

Two fragments of lower jaws (Cat. No. V. 1652). Similar in size to *Canis lupus*.

Ursus angustidens Zdansky

Two fragments of upper jaws, the left one with P^4—M^2 and right one with M^1—M^2 (Cat. No. V. 1653). Its size and essential characters are very close to *Ursus angustidens* (M^2, length 25 mm, breadth 14 mm).

***Ursus arctos* L.**

It is represented by a few fragments of upper and lower jaws (Cat. No. V. 1654). They are larger than those of *U. angustidens*; length and breadth of M^2, 33 and 18 mm; the heel of M^2 is constricted and rounded posteriorly; inner cingulum developed. Based on these characters our specimens are apparently similar to the form described and referred to *U. arctos* by Pei from Locality 1 of Choukoutien, but differ slightly in details.

***Hyaena ultima* Matsumoto:**

The presence of *Hyaena* in our collections is indicated by one broken P_4 (Cat. No. V. 1655). Length and breadth, 26.7 and 16.0 mm. Anterior accessory cusp small and posterior accessory cusp large; posterior cingulum forming a strong and oblique ridge. On account of these characters, this form is referable to *H. ultima* known from Szechuan and also from serval localities in North China.

II. Rodentia

***Siphneus epitingi* Teilhard and Pei** (Plate III, Figure 2).

This species is represented in our series by two left lower jaws (Cat. No. V. 1656) of different sizes. One of them is rather large with anterior and posterior ends broken. Its M_1 and M_2 are well preserved, but the section of M_3 is still recognizable. The small-sized type is well preserved.

Teeth of the two specimens are typical as in *Siphneus* but with folds relatively transverse (less obliquely in zigzag) and last molar reduced. By these characters as well as by the size the form stands very close to *S. epitingi* described by Teilhard and Pei from Locality 13 of Choukoutien (Teilhard and Pei, 1941).

No traces of the *S. epitingi* have been found from the deposits of Nihowan (Lower Sanmenian or Villafranchian=Early Pleistocene) and Locality 1 of Choukoutien (*Sinanthropus* site=Middle Pleistocene), so that it is possibly a form limited to the basal part of Middle Pleistocene:

III. Perissodactyla

***Rhinoceros mercki* Jaeger** (Plate II, Figures 1 and 2).

It is represented by the deformed frontal part and right moiety of mandibles with worn left P_3—M_3 and right P_3—P_4, and four isolated teeth (one crushed right M^2, one broken P_4, one left M_1 and one D_3 (Cat. No. V. 1657).

M^2, crown very high with lophes sub-transverse and separated by a broad valley; outer wall smooth and gently undulating; crochet dominant, crista and anticrochet small; protocone and hypocone separated, but still fused at the base. Protocone well rounded in section. Anterior cingulum strong. Lower molars with outer wall convex, except at the anterior lobe which is slighly flattened. Posterior cingulum weak, and forming a very oblique ridge.

This character is sufficient for determining it as *Rhinoceros mercki*. It is a common form in the Choukoutien cave deposits of Middle Pleistocene, such as Localities 1 (*Sinanthropus* site), 2, 9, and 13 etc. Being traceable down to the Nihowan beds, but no traces of this form have been discovered from the Late Pleistocene or "Loessic" times.

***Equus sanmeniensis* Teil. and Piv.** (Plate II, Figures 3—5).

This large horse is represented by two left lower jaws of young individuals (with milk dentition), several isolated upper and lower teeth and one third metacarpal bone (Cat. No. V. 1658).

Upper Dl not deciduous, well formed and trenchant. Correlative elongation of the anterior part of P^2 into a spur enclosing partly the external wall of D^1. Advance type of protocone, which is well flattened, and clearly subdivided by a groove into an anterior and posterior lobe. Enamel moderately folded. D_1 styliform. D_2—D_4 of a normal *Equus* pattern, the enamel is remarkably simple in design. Third metacarpus being particularly massive.

The traces of the *Equus sanmeniensis* have been found from the deposits of Nihowan and being traceable up to the deposits of Choukoutien. But we have no indication of the persistence of the type in China during the Late Pleistocene or "Loessic" times.

IV. Artiodactyla

***Sus* cf. *lydekkeri* Zdansky**

Fragmentary upper and lower jaws of rather larger size (Cat. No. V. 1659). Similar to *S. Lydekkeri* of Choukoutien in size.

***Pseudaxis* sp.**

Represented by one fragmentary antler and seven fragments of lower jaws (three adults and four juveniles) (Cat. No. V. 1660). It is exactly as in *Pseudaxis*. Mandible not pachyostosed. The external angles of the two lobes of molars are rather sharp.

In a specimen measured for comparison, the total length of three lower molars is 65 mm, as that of *Pseudaxis grayi* from Locality 1 of Choukoutien is 59—66 mm.

Euryceros flabellatus Teilhard (Plate II, Figure 6 and Plate III, Figure 1).

Represented by one fragment of antler (preserved part has a length of about 150 mm long), four fragments of upper jaws, eight fragments of lower jaws, and two isolated teeth (Cat. No. V.1661).

The fragment of antler is that of a young individual, its both ends show the trace of the gnawing marks by large Rodents. Basal part of the beam more or less flattened and bent at an acute angle on the burr.

Upper molars are large and broad.

The shape of the lower jaws is exactly the same as *Euryceros flabellatus* of Locality 13 of Choukoutien. Mandibular bone much pachyostosed, but more harmonously so than in the *E. pachyosteus* of Locality 1 of Choukoutien. Its horizontal ramus looks elongated and slender as a whole, and oval in section at the level of the last molars. Mandibular index is equal to $71\left(\frac{\text{Breadth of ramus under } M_3}{\text{Internal depth under } M_3} \times 100\right)$, instead of about 75 on average as in *E. flabellatus* of Locality 13 and about 90 as in *E. pachyosteus*.

In our specimens we have another broken right lower jaw, its horizontal ramus looks rather deep, external ribs weak and gently undulating.

Spirocerus sp.

One broken left upper jaw with M^1—M^3 and one incomplete left lower jaw with P_2—M_3 (Cat. No. V.1662). In these specimens used for comparison, the length of three upper molars is 65.6, length of lower P_2—P_4 is 27.5, length of lower M_1—M_3 is 64.5 and length of lower P_2—M_3 is 92 mm. The size is slightly smaller than that of the *Spirocerus peii* from Locality 1 of Choukoutien in which the length of lower P_2—M_3 is 100 mm.

Bovidae indet.

One piece of fragmentary lower jaw (Cat. No. V.1663).

V. Proboscidea

***Elephas* (*Palaeoloxodon*) sp.**

One broken right tibia (Cat. No. V.1664).

GENERAL OBSERVATIONS ON THE FOSSILS

Among the mammalian species from Chihcheng fossiliferous deposits, the *Siphneus epitingi* and *Euryceros flabellatus* are so far known only from the earlier Middle Pleistocene, such as Locality 13 of Choukoutien; the *Rhinoceros mercki* and *Equus sanmeniensis* are known from both Nihowan and Locality 1 (*Sinanthropus* site) of Choukoutien. That the fauna of Locality 1, although of a typical Middle Pleistocene composition, is still younger than those of Locality 13 and Chihcheng.

The record of mammalian remains of this deposits is particularly interesting, because so far as some of them are discovered for the first time in the reddish clay outside the cave deposit of Locality 13 of Choukoutien.

圖版 I 說明

圖 1. 南溝嶺的水渠

圖 2. 南溝嶺化石層

Explanation of Plate I

Fig. 1. Irrigational canal at Nankouling.

Fig. 2. Fossiliferous beds at Nankouling at the time of discovery.

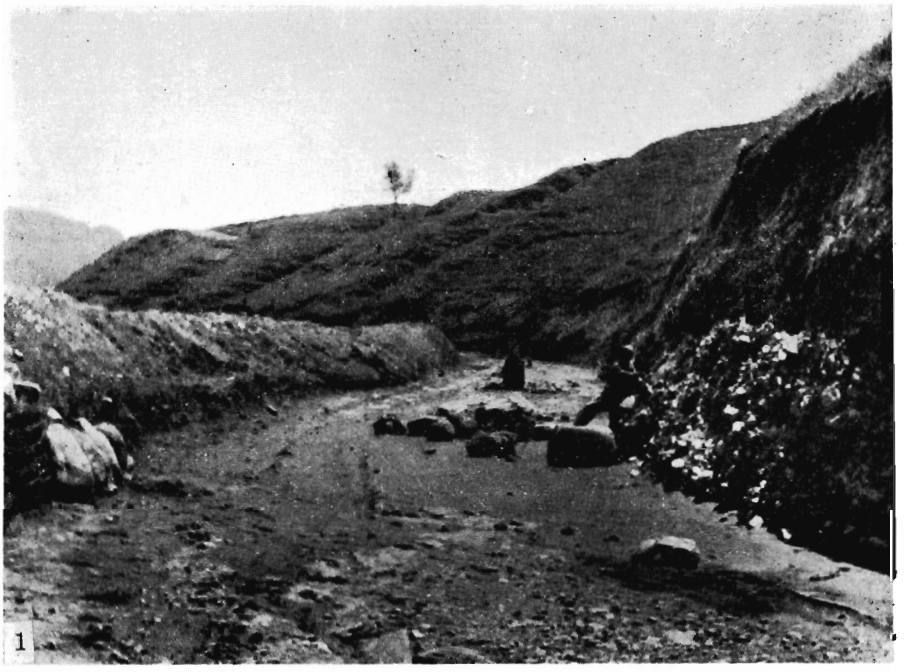

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圖 版 II 說 明

圖 1. 梅氏犀牛. 右上第二臼齒，自齒面視. × 1/1

圖 2. 梅氏犀牛. 下顎骨，自上面視. × 1/3

圖 3. 三門馬. 右上第一乳齒及第二前臼齒，自齒面視. × 1/1

圖 4. 三門馬. 右上第一或第二臼齒. × 1/1

圖 5. 三門馬. 幼年的左下顎骨，自上面視. × 1/2

圖 6. 扁角腫骨鹿. 右上顎骨碎塊，第四前臼齒至第二臼齒保存，自齒面視. × 2/3

Explanation of Plate II

Fig. 1. *Rhinoceros mercki* Jaeger. Right M^2 from below. × 1/1.

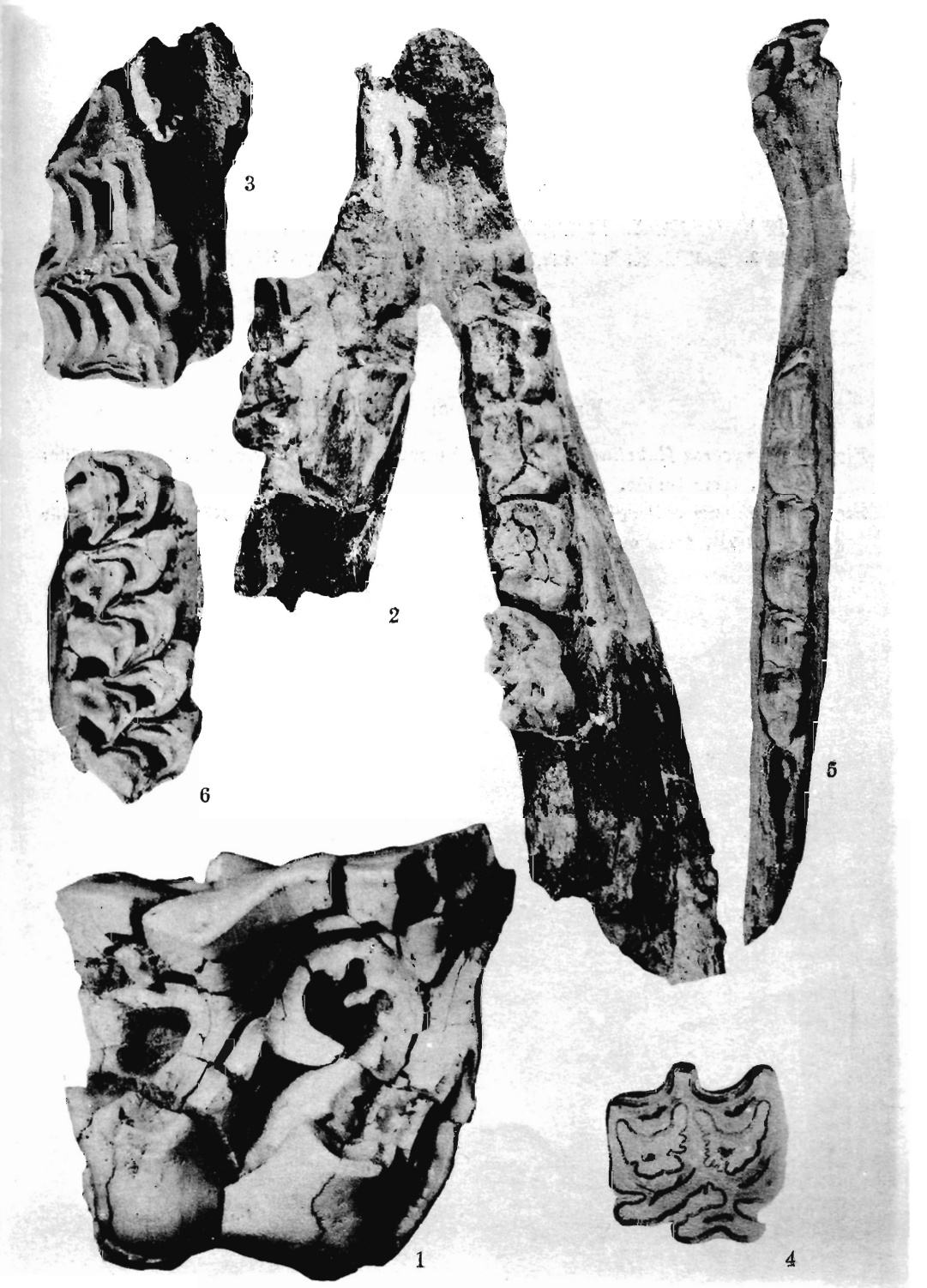
Fig. 2. *Rhinoceros mercki* Jaeger. Lower jaw from above. × 1/3.

Fig. 3. *Equus sanmeniensis* Teil. and Piv. Right D^1 and P^2 from below. × 1/1.

Fig. 4. *Equus sanmeniensis* Teil. and Piv. Right M^1 or M^2. × 1/1.

Fig. 5. *Equus sanmeniensis* Teil. and Piv. Left lower jaw of a young individual from above. × 1/2.

Fig. 6. *Eurygeros flabellatus* Teilhard. Fragment of right upper jaw with P^4—M^2 from below. × 2/3.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2
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圖 版 III 說 明

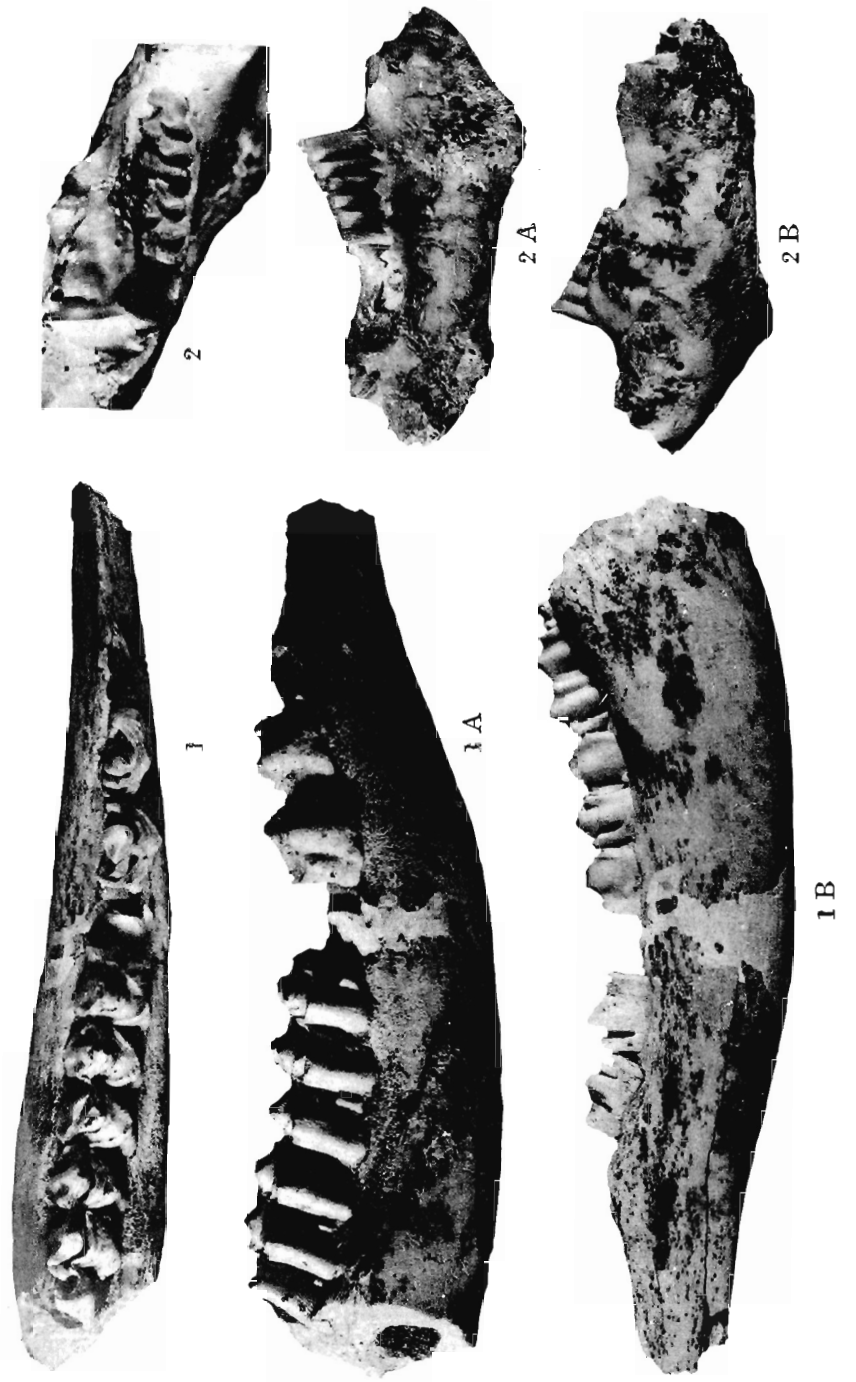
圖 1. 扇角腫骨鼠. 下顎骨自上面視; 1A, 自外面視; 1B, 自內面視 × 2/3

圖 2. 大丁氏田鼠. 下顎骨自上面視, × 3; 2A, 自內面視; 2B, 自外面視 × 2.

Explanation of Plate III

Fig. 1. *Eurygeros flabellatus* Teilhard. Lower jaw from above; 1A, from outside; 1B, from inside. × 2/3.

Fig. 2. *Siphneus epitingi* Teil. and Pei. Lower jaw from above×3; 2A, from inside and 2B, from outside. × 2.


2
2A
2B
1
1A
1B