

豆滿江沿岸潼關鎮發掘物調查報告
滿洲帝國間島省大馬鹿溝發掘物調查報告

德 永 重 康
森 爲 三

REPORT OF DIGGINGS AT DŌKANTIN, THE COAST
OF THE RIVER TŌMAN, KOREA.

REPORT OF DIGGINGS AT TAMALUKOU, PROVINCE
CHIEN-TAO, MANCHOUKUO.

By

Shigeyasu TOKUNAGA and Tamezō MORI

MARCH 1939

豆滿江沿岸潼關鎮 發掘物調査報告

理學博士 德 永 重 康

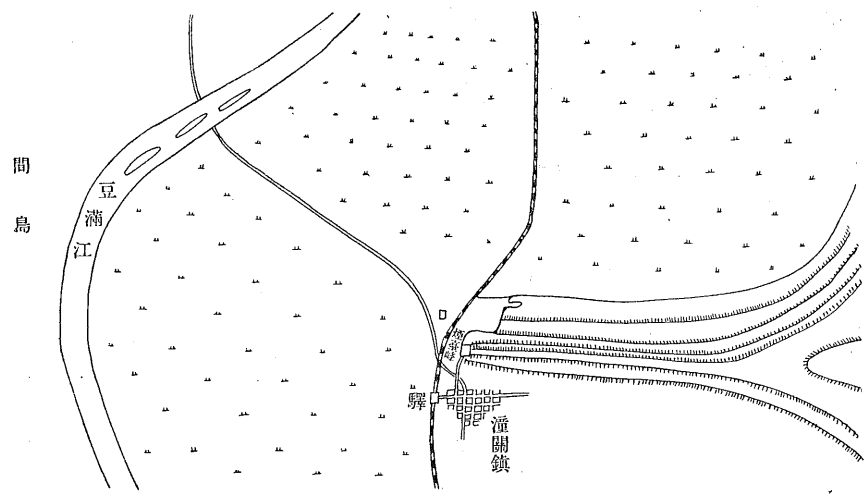
理學博士 森 爲 三

圖版 I—VI

緒 言

昭和七年七月朝鮮鐵道局ニ於テ圖們西部線廣軌建設ノ爲メニ、豆滿江ニ沿ヒ主トシテ更新世ノ地層ヲ掘鑿セシニ、上三峯ニ於テ犀ノ齒出デタリトノ報ニ接セリ。由テ森ハ當時上三峯普通學校長タリシ前川福右衛門氏ニ依頼シ、標本ヲ取寄セ調査セシニ、果シテ犀ノ齒ナリシヲ以テ、昭和八年六月森ハ咸鏡北道會寧ニ出張スル機會ヲ利用シ、上三峯ニ赴キ、鐵道工事掘鑿跡ヲ視察シ、*Bison* sp. ノ角及犀ノ鼻骨、上膊骨等ヲ拾ヒタリ。此ノ際潼關鎮ニモ犀ノ齒出デタリトノ事ニテ同地ニ赴キ、當時潼關驛長タリシ石崎熊一氏ヨリ同地出土ノ犀ノ齒ノ寄贈ヲ受ケ、更ニ同氏ノ案内ニテ驛ヨリ東北數町ノ距離ニアル煙臺峯ト稱スル更新世臺地ノ鐵道工事切取個所ヲ人夫ヲ雇ヒ掘り返ヘセシニ、數種ノ哺乳類化石及二個ノ古人類遺品ト認ムベキモノ出土シタリ。是等ノ發掘品ハ德永重康及直良信夫調査ノ哈爾濱附近顧鄉屯ノ發掘品ト密接ナル關係アル可キコト、殊ニ古人類遺品ト認ムベキモノガ學術上ノ興味多大ナルヲ感知シ、編者等ハ外務省文化事業部ノ補助ヲ受ケ趙福成氏ヲ伴ヒ、昭和十年七月二十四日ヨリ八月一日マデ、次ニ八月八日ヨリ同十日マデ約二週間、前記潼關鎮煙臺峯臺地ヲ發掘シ、多量ノ哺乳類化石ト共ニ古人類遺品ト認ムベキモノヲ發見シ、更新世文化ガ北支那ヨリ滿洲ヲ經テ北朝鮮マデ擴ガリシコトヲ確實ニ知ルヲ得タリ。更ニ間島省大馬鹿溝ハ德永ノ調査ニヨリ先ニ「mammos」ノ牙及白齒ノ出土シタルコトアルヲ以テ、潼關鎮及ビ顧鄉屯トノ關係ヲ知ラントスル目的ニテ、同年八月三日ヨリ同六日マデ前記大馬鹿溝鹿林洞ノ「mammos」ノ牙ノ出デタル所ヲ發掘シ、犀馬等ノ齒及骨等ヲ發掘シタルモ、古

實地調査發掘ニ關スル一切ノ費用竝ニ報告出版費ハ、總テ外務省文化事業部ノ好意ニ由リ支出ヲ受ケタリ。第一次滿蒙學術調査研究團報告中記載ノ德永重康、直良信夫ノ哈爾濱郊外顧鄉屯發掘物ニ關スル調査ト多大ノ關係アルヲ以テ此處ニ同報告中ニ編輯出版スルコトトセリ。



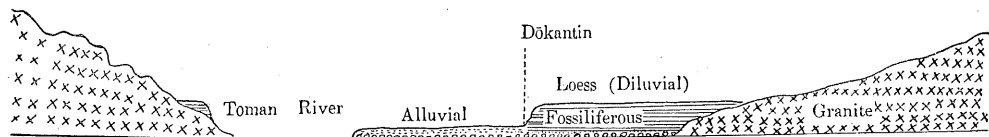
挿圖 1. 潼關鎮地方平面圖.
Text-fig. 1. Map of Dōkantin.

人類遺品ヲ見出シ得ズ、且出土品多カラズ、シカモ包含層ハ往古森林地帯ナリシト見エ樹幹化石ノ横倒シノモノ多ク發掘容易ナラズ、殊ニ匪賊ノ懸念モアリ、四日間ニテ調査ヲ終リタリ。

今回ノ調査ハ外務省文化事業部ノ補助ニヨルモノニシテ、同部ニ對シ深ク感謝ノ意ヲ表ス。猶潼關鎮ノ發掘ニ際シテハ同地警察官駐在所長前田健次郎氏及ビ當時ノ鐘城普通學校長吾妻彌太郎氏、大馬鹿溝ニ於テハ當時ノ間島永井總領事、同小川警察部長、及千葉巡查部長、間島中央學校中村靜夫等ノ諸氏ヨリ、多大ノ援助ニ預リタリ。趙福成氏ハ發掘事業ニ於テ献身ノ努力ヲ盡サレタリ。此處ニ記シテ以上諸氏ノ厚意ヲ深謝ス。

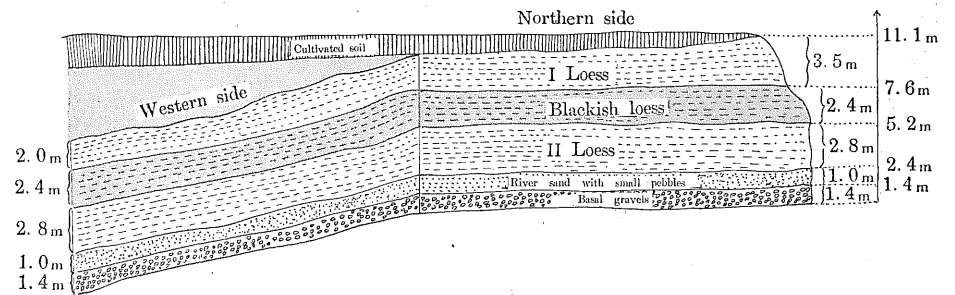
第一章 發掘地遺物ノ出土狀態

遺物發掘地ノ潼關鎮煙臺峯ハ昔時非常時ニ異變ヲ隣接ノ烽火臺ニ報ズル爲メ烽火ヲ擧ゲシ臺地ニシテ、今尙當時ノ石推ヲ殘セリ。コノ煙臺峯臺地上ニハ新石器時代遺物ノ石器、土器、動物ノ遺骨等地表ニ散亂シ、地表ハ明ラカニ新石器時代ノ遺跡タリシコトヲ證スルモノナリ。余等ハ七月二十四日ヨリ人夫ヲ雇ヒ、煙臺峯鐵道切取りノ北面斷崖黄土層ヲ幅約一米半、長二十六米、



挿圖 2. 潼關鎮化石含有層及ビ豆満江斷面.
Text-fig. 2. Fossiliferous bed in Dōkantin.

深サ九米、切り下ゲタルニ、下底ハ遂ニ河成砂礫層ニ達シタリ。而シ此北面斷崖ニテハ黑色黄土ノ層中ヨリ多數ノ *Myospalax* (モグラネズミ屬) 及 *Citellus* (ハタリス屬) ノ化石ヲ得タルモ、ソノ他ノ化石ハ *Cervus elaphus* L. (アカシカ) ノ角ヲ得タルノミニテ、化石ヲ含有スルコト極メテ少カリシ。次ニ鐵道切取り西面斷崖ヲ幅約一米半、長サ二十四米程次第ニ切り下ゲシニ、地表ヨリ一米半乃至二米厚サノ第一黄土層中ノ下部ヨリ、多量ノ「ハイエナ」、「mammos」、犀、鹿、野牛、原牛、羊、馬等ノ化石出デ、殊ニ馬ノ化石ハ夥シク全數ノ半バ以上ニ達セリ。更ニ注目スベキハ是等ノ化石ニ古人類ノ加工セシト認ムベキモノ多數ニアリタルコトニテ又黒曜石加工ノ舊石器モ出土シタリ。コノ西側斷面ハ北面斷崖ニ比スレバ、第一黄土層ハ地表ニ近キ一米半迄ハ既



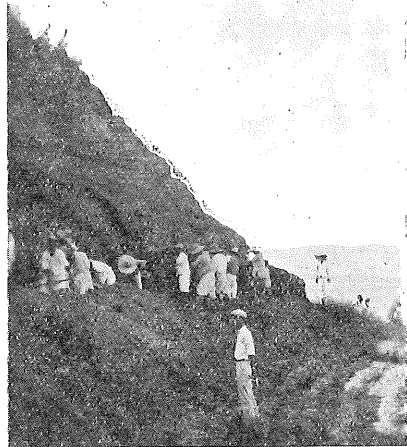
挿圖 3. 潼關鎮煙臺峯ノ崖
Text-fig. 3. Cliff of Dōkantin.

ニ削リ取ラレタリ。以上ニテ煙臺峯連丘ノ北斜面ノ地表下一米半乃至二米邊ニハ多量ノ化石埋藏シ居ルコトヲ知り得タリ。而シテ此含化石第一黄土層ノ下ノ少シク黒味ヲ帯ビタル黄土層ニハ *Myospalax* (モグラネズミ) 等ノ化石存スルノミニテ、其下ノ第二黄土層以下ニハ化石ヲ認メズ。

即チ潼關鎮ノ主要化石包含層ハ主トシテ上部黄土層中ニ存スル者ナリ。此哺乳類遺骸ハ北支等ニテ稱スル所謂黄土期ノ産物ナルヤ、換言スレバ黄土ノ堆積ト同時期ノ者ナルヤ否ヤヲ決定スル爲メニハ、先ヅ潼關鎮一體ノ地質學ノ觀察ノ外、黄土ノ定義性質ヲ研究セザル可カラズ。潼關鎮ハ現今豆満江ノ沿岸ニ沿ヒタル地ニシテ、黄土質岩石ハ豆満江ノ現世沈積層(沖積層)ヨリモ約十米以上ノ高臺ヲ



挿圖 4. 潼關鎮ニテ哺乳類化石發掘
Text-fig. 4. Excavation of Mammalian Fossils at Dōkantin.



挿圖 5. 潼關鎮ニテ哺乳類化石發掘
Text-fig. 5. Excavation of Mammalian Fossils at Dōkantin.

ナシテ横ハレリ。地形及ビ岩質ヨリ推察スル時ハ此黄土質岩石層ハ現世層ヨリモ著シキ差違アルヲ以テ、確定的ノ證左材料ヲ得能ハザリシモ、時代ハ更新世成生物ナリト思考ス。然シテ地質ヲ詳査スルニ上記セル通り、上部ハ黄土ノミヨリナレドモ、下部ニ近クハ川砂及ビ砂礫層ヲ以テ構成セラ。猶黄土層ノ最下部ニ至レバ砂礫層中ニ黄土多量入り込ミ、又ハ一部小區域ニハ黄土層ト砂礫層ト交互セル處アリテ、明ラカニ一部ノ黄土ハ河川ニ由リ流出沈積セル者ナルコトヲ示シ、所謂河成黄土層ト稱サレ得可シ。抑黄土ナル者ハ北支殊ニ山西省以西ニ極メテ廣ク發達セルコトハ周知ノ事實ニシテ、引テ滿洲ニモ發達スレドモ其量ハ寧ロ少ナク、然モ山西省ニ見ル如キ眞ノ黄土層ト稱シ得可キ者少ナシ。故ニ潼關鎮ノ所謂黄土質岩石ハ

果シテ北支黄土層ト同性質ノ者ナルヤニ就テハ蓋シ研究ノ餘地アル可キモ、余等ノ肉眼的觀察ニテハ滿洲ニ發達スル所謂黄土層ト酷似スルヲ以テ、本論文ニハ黄土層トシテ記述セリ。然シテ疑ヒナキ Primary loess ナル者ハ北支ニ於テモ容易ニ實現スルコトヲ得ズ、況ンヤ遙カ東方、滿洲若クハ北鮮ニ迄發達スル黄土層ハ初生黄土堆積後風力又ハ水力ノ爲メ更ラニ移動シテ堆積セル Re-deposited loess ナル可キコトハ想像スルニ難カラズ。内ニ含マルル哺乳類化石ノ生息時代ハ初生黄土成生時代(中部更新世ト稱セラル)ト同期カ又ハ其後ナル可キカニ就テハ、化石ノ種類割合ニ少ナク又細別セル地質時代ヲ決定ス可キ特殊種類ニ乏シキ爲メ、明ラカニ其哺乳類生息時代ヲ定ムルニ困難ナレドモ、猶前世紀ノ特産タル *Elephas primigenius*, *Rhinoceros antiquitatis*, 及ビ絶滅種タル *Hyaena*, *Megaceros* 等ノ存在ニテ更新世中ノ中期以後ノ産物ナルコトハ明ラカナリ。而シテ哈爾濱郊外顧鄉屯ノ哺乳類化石層ト比スル時ハ寧ロ多少新期ト見做スコトガ合理的ト思考ス。從テ中部更新世中ノ最上部カ、若クハ上部更新世カト想像スルモ、其確定ハ將來ノ研究調査ニ待タザル可カラズ。猶化石含有層生成ガ哺乳類生息時期ヨリ遙カニ後代ニシテ、換言スレバ前地層時代ノ化石ガ流出後期ノ地層中ニ沈積セシ者ナルヤニ就テハ、余ハ然ラザル者ト信ジ、化石時代ト地層時代トハ地質學上ノ同期ト思考スル者ナリ。

潼關鎮哺乳類發掘ト共ニ發見サレタル石器及ビ獸骨加工ノ骨器(別紙直良信夫氏論文參照)ハ、哺乳類化石ト全く混交シテ同一ノ地層中ヨリ出デタル者ニシテ、決シテ上部地層其他ヨリ混入シタル者ニアラズ。此加工時代ハ哺乳類生息時代ヨリモ後期ノ人類ノ加工ナルヤヲ疑フ可キ反

證ヲ舉グルコトヲ得ザル故、余等ハ哺乳類化石時代ニ既ニ住居シ居リシ古代人類ノ所業ナリト思考スル者ナリ。

第二章 發掘哺乳類目錄

食肉類

HYAENIDAE

Hyaena ultima dokantinensis subsp. nov.

Hyaena sp.

嚙齒類

OCHOTONIDAE

Ochotona sp.

SPALACIDAE

Myospalax cf. *epsilanus* THOMAS

MURIDAE

Microtis mackawai sp. nov.

SCIURIDAE

Citellus tomanensis sp. nov.

偶蹄類

CERVIDAE

Capreorus cf. *pygargus ochracea* BARCLAY

Cervus elaphus LINNAEUS

Cervus elaphus canadensis ERXLEBEN

Megaceros sp.

BOVIDAE

Bos primigenius BOJANUS

Bison exguus MATSUMOTO

Ovis cf. *ammon* LINNAEUS

奇蹄類

EQUIDAE

Equus cf. *przewalskii* POLIAKOFF

Equus przewalskii POL. subsp.

Equus sp.

RHINOCEROTIDAE

Rhinoceros antiquitatis BLUMENBACH.

長鼻類

ELEPHANTIDAE

Elephas primigenius BLUMENBACH

第三章 潼關鎮發掘古生物ノ記載

潼關鎮煙臺峯發掘ノ古生物ハ哺乳類ノ化石ノミニシテ、他ノ動物化石ヲ發見セズ。其ノ種類ハ食肉類、嚙齒類、偶蹄類、奇蹄類、長鼻類ニシテ種類トシテハ割合ニ少ナキモ、個體ノ數ハ實ニ夥シク産出セリ。ソノ中最モ數多キハ馬ノ齒及骨ノ化石ニシテ、全量ノ半バ以上ヲ占ム。次ニ此等化石ノ有スル生物學的特徴ニ就テ述ベントス。本文記載中ノ計算數字ハ凡テ耗ヲ以テ單位トセリ。

Hyaena ultima dokantinensis subsp. nov.

(第2圖版, 1, 2, 4, 5. 挿圖第6, 7)

發掘品。下顎骨(基型標本)。頭骨(中顴骨弓及右前頭骨ヲ缺ク)。上顎骨破片。

特徴。下顎骨ハ本種 *Hyaena ultima* MAT. ニ似タレドモ、下顎骨體高ハ高く、下顎骨聯合ハ極メテ大ニシテ、第三及第四前臼齒ハ小サク、第一臼齒(割截齒)ノ刀狀縁ハ半月狀ニ非ズシテS字狀ナルコト等ニヨリ區別セラル。次ニ頭骨ニ於テハ聽胞ノ大ナルコト、第四前臼齒ノ長クシテ幅狭キコトニヨリ *H. ultima* ト區別セラル。

頭骨ノ記載。頭骨ハ大ニシテ、吻部ハ幅廣ク腦筐ノ幅ヨリ大ナリ。背輪廓ハ鼻骨ヨリ眼窩ノ前迄次第ニ高マリ、次ニ bregma ノ少シク前ニ於テ急ニ隆起シ、ソノ後方ハ直トナリ、次ニ後頭結節ニ向ツテ下ル。腦筐ハ狭クシテ深く、上方ヨリ見レバ長卵形ナリ。ソノ幅ハ顴骨根上ニテハ犬齒ヲ含ム吻部ヨリ幅狭シ。腦筐ノ高サハ(聽胞ヲ通シテ)後頭三角幅徑ト略等シ。後頭部ハ狭クシテ高く、中央縱隆起ハヨク發達ス。コノ後頭部ヲ側面ヨリ見ルトキハ著シク凹形ニシテ、後頭顆ハ突出セズ。聽胞ハ稍大形ニシテ橢圓形ヲ呈シ、短クシテ大ナル骨質聽管ヲ有ス。矢狀溝及後頭結節ハヨク發達シ、前者ハ bregma ノ前ニ於テ後眼窩突起ノ後縁ヲ形成スルガ如ク二分ス。眼窩間部ハ後眼窩間部ヨリ幅廣シ。鼻骨ハ短ク、上顎骨ノ後突起マデ延長セズ。前上顎骨ハ鼻骨ノ中央ヲ越エテ後方ニ延ブレド、前頭骨ノ前方部マデ達セズ。上顎骨ハ眼窩ノ中央ヲ少シク越エテ後方ニ延ブ。前眼窩孔ハ 11×5 mm. ノ大サアリテ、第三前臼齒ノ後根上ニ存ス。口蓋部ハ廣ク、且強ク凹形トナリ、門齒孔ハ兩犬齒間ヨリ少シク前ニアリテ、長サ約 20 mm. ニ達ス。

下顎骨。下顎骨ハ *H. ultima* ヨリ大形ニシテ、第四前臼齒ノ前ニ於ケル體高ハソノ長サノ四分ノ一位アリ。下顎骨聯合面ハ非常ニ大ニシテ、ソノ徑 52×25 mm. ナリ。角狀突起ハ小サク、下縁ハ第二前臼齒ノ下ハ凹形ナレド、第一臼齒ノ下ハ凸形ナリ。

齒。上顎永久齒。

第一前臼齒。小形ニシテ、ソノ横徑ハ齒槽ノ縱徑ニ等シ。

第二前臼齒。前後ニ小形附屬丘ヲ有シ、ソノ形長方形ナリ。

第三前臼齒。原丘ノ前内方ニ沿ヒ一畝アリ、ヨク發達シタル礎帶ト連結ス。後方ノ附屬丘ハ後方ノ礎帶ト大サ略同ジ。

第四前臼齒。長クシテ幅狭シ。副丘比較的大ニシテ前方ニ位置シ、前丘ハ退化シ原丘ヨリハ小形ニシテ低シ。而シテ前方ノ礎帶モ發達惡クソノ先鈍シ。原丘ハ高くシテ長ク、前内方ノ畝ナク、tritocone ハ著シク延長シ原丘ヨリ長クシテ低シ。

臼齒。普通缺如ス。

下顎永久齒。

下顎ノ門齒及犬齒ハ *H. ultima* ヨリ小形ナリ。

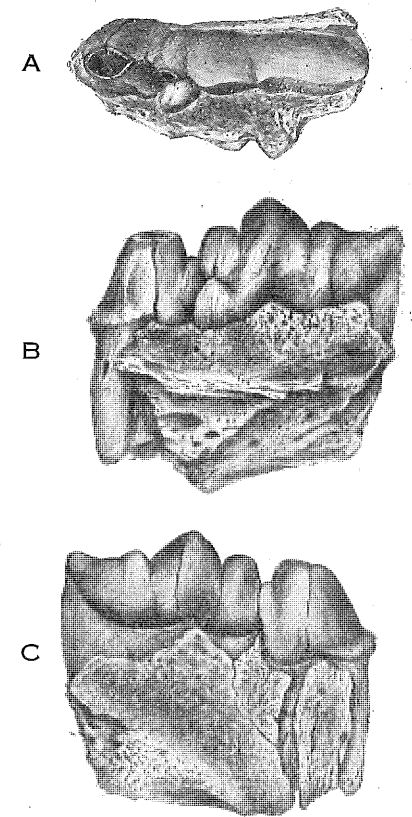
第一前臼齒ハ普通缺如ス。

第二前臼齒ハ稍大形ニシテ略長方形トナリ、原丘ノ前方ニアル畝ハ不判明ナル前附屬丘ト結合シ、後方ノ附屬丘ハ稍大ニシテ明瞭ナリ。

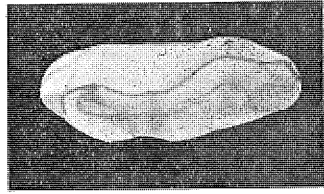
第三前臼齒。前方附屬丘ハ小形ニシテ明瞭ナラズ。後方ノ附屬丘ハ明瞭ナレド礎帶ヨリハ發達セズ。

第四前臼齒 前方附屬丘ハ中等大後方、附屬丘ハ稍大ナレド低シ。

第一臼齒。幅狭クシテ延長シ、前丘ハ原丘ヨリ長ク、原丘ハ比較的小形ニシテ低ク、ソノ刀狀縁ハS字形ニシテ半月形ニ非ズ。嘴狀丘ハ小形ニシテ銳截トナリ、下丘ハ小尖丘トナリ、後丘及後方礎帶ハ不判明ナリ。



挿圖 6. Text-fig. 6. *Hyaena ultima dokantinensis* TOK. et MORI. P³ and P⁴ (3/5 nat. size)
A. 上面 Upper view
B. 内側 Inner view
C. 外側 Outer view



挿圖 7. Text-fig. 7. *Hyaena ultima dokantinsensis*. TOK. et MORI. M₁ 上面 (nat. size)

ク短シ。

上記ノ下顎齒ハ凡テソノ先後方ニ向ヘリ。

上顎乳齒。

乳犬齒。圓錐形ナレド低シ。

第二前乳白齒。齒冠ハ後方ニ向ヒ、前附屬丘ハ不判明ナルガ、後附屬丘ハ判明ナレド小形ナリ。

第三前乳白齒。副丘ヲ缺如ス。前丘ハ大形ニシテ弱キ礎帶アリ。原丘ハ前丘ヨリ長ク triticone ヨリ少シ

頭骨測定表 (單位耗)

最大長 (門齒ヲ除ク)	約 290
基底長	約 270
基底小長	245
鼻骨長	65
同 幅	24
兩犬齒ヲ通ズル吻ノ幅	100
兩方ノ第四前白齒ヲ通ズル吻ノ幅	166
聽胞ノ幅	95
聽胞ヲ通ズル腦筐ノ高サ	123
眼窩内部ノ幅	67
後頭三角幅	130
後頭大孔ノ徑	高サ 20 幅 25
上齒列 (門齒槽ノ後緣ヨリ)	130

下顎骨測定表

下顎骨聯合ノ徑	高 55 幅 26
第二前白齒前ニ於ケル下顎體高	46
第四前白齒ノ前ニ於ケル下顎體高	48
第一白齒ノ後ニ於ケル下顎體高	57.5
犬齒ト第二前白齒トノ間隙	10.3
第二前白齒ヨリ第一白齒マデノ下齒長	94.5

齒ノ測定表

	犬齒		第二前白齒		第三前白齒		第四前白齒	
	長	幅	長	幅	長	幅	長	幅
上顎齒	22	17	19	12.5	25.5	19.5		
同 上					26	20	44.5	23
上顎乳齒	15	11	22	17	43	22		
	第二門齒	第三門齒	犬齒	第二前白齒	第三前白齒	第四前白齒	第一白齒	
下顎齒	長	幅	長	幅	長	幅	長	幅
同 上	7	5.5	10.5	10	16.5	16	17.5	13
同 上					15.5	12	22	15
					16.5	12.5	22.5	16
					24	15.4	33.5	13.5

Hyaena sp.

(第2圖版3. 挿圖第8)

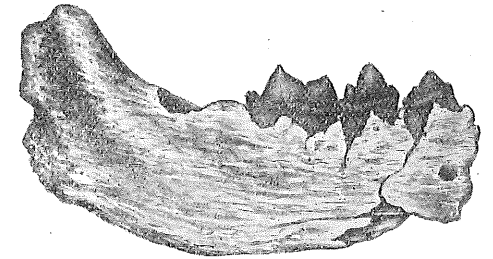
發掘品。乳齒第二ヨリ第四マデノ前白齒ヲ有スル下顎骨破片。

特 徵。本下顎骨破片ハ *H. licenti* PBIニ似タレド、大サ小サク且前白齒細シ。

第二前乳白齒。齒冠尖ク前方ニ一軌アリ。前附屬丘ハ不判明、後附屬丘ハ明瞭ナレド小形ナリ。

第三前乳白齒。前附屬丘ハ明瞭ニシテ中等大、弱キ礎帶ヲ有ス。後附屬丘ハ大ニシテ、小形ノ下丘ト明瞭ナル後方礎帶ヲ有ス。

第四前乳白齒。原丘ト前丘トハ大サ等シケレド、前者ハ後者ヨリ高シ。後丘ハ缺如シ、嘴狀丘ハ比較的ニ大形ニシテ、ヨク發達シタル下丘及内丘ヲ有ス。而シテ稍小形ニシテ明瞭ナル附屬下丘アリ。



挿圖 8. Text-fig. 8. *Hyaena* sp. (3/5 nat. size)

下顎ノ測定 (單位耗)

第二前乳白齒	10.5 × 6.2
第三前乳白齒	14 × 7.2
第四前乳白齒	20 × 7.5
第四前乳白齒ノ前ニ於ケル下顎體高	30
第四前乳白齒ノ後ニ於ル下顎體高	31
第四前乳白齒ノ後ニ於ケル下顎體厚	15.5



挿圖 9. Text-fig. 9. *Ochotona* sp. (×2 nat. size)

- A. 上面 Upper view
- B. 外側 Outer view
- C. 内側 Inner view

Ochotona sp.

(挿圖第9)

發掘品。左側下顎骨片。

特 徵。本種ノ下顎骨體ハ少シク厚メニシテ、枝骨底ノ縊レハ弱ク。齒牙ニアリテハ稍大ナルヲ見ル可シ。本種ニ最モ近似セルハ *O. manchurica* THOMAS ナリ。但シソノ相違點ハ本化石種ノ方、齒冠ノ僅カニ長クシテ、各葉ノ菱形度強メナリ。枝骨ノ形相ニ至リテハ明カナラズ。從ツテ今之ヲ *Ochotona* sp. トシテ取扱フ。

記 載。枝骨ヲ失ヘリ。下顎骨體ハ體高少シク

低メニシテ、體厚ハ厚ク、體下底ノ下方膨出ハ強シ。齒隙長ハ僅ニ長ク、下顎連合部後邊ノ上縁ハ正中線ノ處高シ。M₁ 下邊ノ體內側ニ於ケル門齒齒槽後端隆起ハ顯著ナリ。齒牙ハ P₄ M₁ ヲ殘存シ、I₁ P₃ M₂ M₃ ヲ脱落缺失ス。

第四前臼齒。齒冠長稍長目ニシテ、前葉ノ菱狀展開強シ。各葉トモソノ舌側角ニハ小破損存スルモ、頰側角ハ著シク尖レリ。

第一臼齒。前葉ハソノ巾廣ク、頰舌兩側咬合面角ハ甚シク尖銳ナリ。前葉ノ菱狀展開ハ P₄ ヲ更ニ強シ。

下顎ノ測定表 (單位耗)

下顎骨長 (門齒槽後縁ヨリ枝骨中央迄)	22.5			
	下顎體高	下顎體厚		
第一門齒 (後縁)	3.0	2.5		
第三前臼齒 (齒槽)	6.5	3.0		
第四前臼齒	6.8	4.0		
第一臼齒	6.0	3.3		
第二臼齒 (齒槽)	6.0	3.3		
第三臼齒 (齒槽)	5.1	3.0		
第三前臼齒 (齒槽) — 第三臼齒 (齒槽) 齒列長			9.5	
第三前臼齒 (齒槽) — 第四前臼齒 齒列長			4.0	
第一臼齒 — 第三臼齒 (齒槽) 齒列長			5.5	
	齒冠長	齒冠巾	齒冠高 (頰側)	齒冠高 (舌側)
第一門齒 (齒槽)	2.0	2.5	—	—
第三前臼齒 (齒槽)	2.0	2.0	—	—
第四前臼齒	2.0	2.0	2.3	1.5
第一臼齒	2.1	2.0	1.9	1.3
第二臼齒 (齒槽)	2.5	2.5	—	—
第三臼齒 (齒槽)	1.5	2.0	—	—

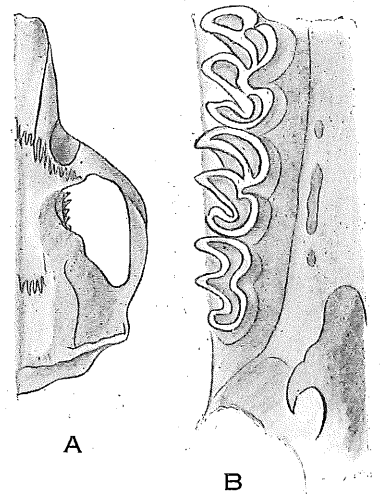
Myospalax cf. *epsilanus* THOMAS

(第2圖版6, 8, 10, 11 挿圖第9, 10, 11)

發掘品。稍完全ナル頭骨五個、及下顎骨四個、是等ノ外ニ數個ノ肢骨。

頭骨ノ記載。頭骨ハ重厚ニシテ、ソノ上表面ニハ著シキ縦畝アリ。且ソノ全形上方ヨリ見レバ、後方膨レタル楔形ナリ。背部輪廓ハ鼻骨ヨリ後頭結節マデ、眼窩間部ノ少凸ヲ以テ急ニ一様ニ高マレリ。腹部輪廓ハ門齒後方ハ凹形ナレド、ソレヨリ臼齒槽マデ下方ニ擴ガリ、臼齒槽ヨリ後頭頰マデ水平トナレリ。後頭部ハ斜トナリ、ソノ斜面ハ鼻骨後端ヨリ後頭結節マデノ距離ヨリ短シ。鼻骨ハ幅廣ク、兩鼻骨間ニ縦ノ溝アリ。眼窩間部ハ中央縦ニ凹ミ、兩縁ハ高マレリ。腦筐ハ廣卵形、ソノ上表面縦凹ナリ。顛頂骨ノ畝ハ成長シタルモノニテハヨク發達シ、顛頂骨ヨリモ前方マデ左右相近ケリ。前眼窩孔ハ大ニシテ、ソノ外壁ハ前上方ニ凸出セズ。三角縫合ハヨク發

達シ、顴骨根ノ後縁トソノ外端接續ス。後頭壁ハ扁平ニ近ク略五角形ニシテ、ソノ下縁ト上外縁トハ略同長ニシテ、下外縁ヨリハ少シ長シ。後頭大孔ハ方形ナレド、幅ヨリ高サ高シ。外後頭骨突起ハ明瞭ナレド短ク、後頭大孔ノ下縁ノ線マデ延長セズ。基底後頭骨ノ幅ハ寧ろ廣ク、中央縦ニ畝アリ。兩側ハ扁壓サル。聽胞ハ稍大形ニシテソノ球形形ニ近シ。顴骨部ハ纖細ニシテ、中央擴ガラズ、外下方ニ曲レリ。吻ハ適當ノ長ヲ有シ、基部ハ廣クシテ前ニナル程細クナレリ。鼻骨ハ廣ク前ヨリ後程狭クナリ、ソノ後縁凹形ニシテ前上顎骨ノ鼻骨枝端ニ殆ンド達ス。吻ヲ側面ヨリ見レバ楔形ニシテ、門齒ノ後ノ高サハ M¹



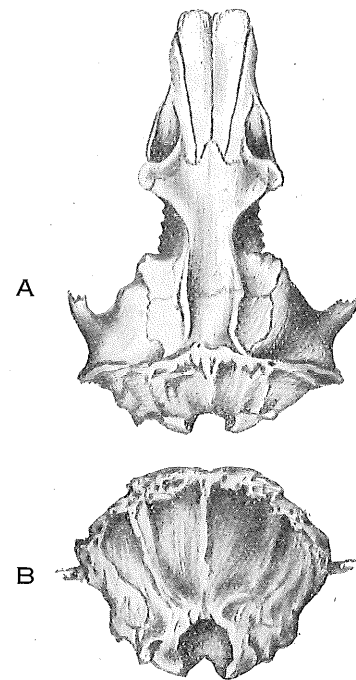
挿圖 10, 11. Text-figs. 10 and 11. *Myospalax* cf. *epsilanus* THOMAS
A. 頭骨右半上面 (Upper view of cranium)
B. 右上臼齒列 (Upper molars)
A. nat. size B. enlarged

ノ齒槽ノ所ノ高サノ二分ノ一ナリ。

門齒孔ハ稍長ク全ク前上顎骨ノ間ニ横ハレリ。口蓋骨ハ狭クソノ最小幅ハ齒槽幅ヨリ少シク大ニシテ、中央縦ノ畝ハ門齒孔ヨリ後縁ノヨク發達セル棘マデ延長セリ。下顎骨ノ嘴狀突起ハ稍高ク、少シク後方ニ曲レリ。顆狀突起ハ低ク、ソノ基底ニ門齒內柱來レリ。角狀突起ハ強キ凸狀ノ下縁ヲ有シ、ソノ遊離端ハ短ク急ニ外方ニ曲レリ。

齒ノ記載。上顎門齒ノ露出セル部ハ殆ンド垂直ニシテ、齒根ハ延ビテ M¹ 前ノ口蓋側ニ於テ少シク隆起部ヲ形成ス。ソノ門齒ハ寧ろ側扁ニシテ、横徑ハ前後徑ヨリ小ナリ。瑛瑯質ハ外内方ハ橙黃色ヲ呈ス。

下顎門齒ハ下顎骨ガソノ鞘トナレル觀アル程大ニシテ、ソノ齒根ノ先ハ角狀及顆狀突起ノ間ニ外側ニ著シキ結節ヲ現ハス。断面ハ上顎門齒ト同ジク側扁ナレド、一層前後徑長シ。臼齒ハ前方ヨリ後方ニ至ル程大サ減ジ、第一臼齒ハ第三臼齒ノ一倍半アリ。是等ノ上



挿圖 12. Text-fig. 12. *Myospalax* cf. *epsilanus* THOMAS
A. 頭骨上面 (Upper view of cranium)
B. 頭骨後面 (Posterior view of cranium) (nat. size)



挿圖 13. Text-fig. 13. *Myospalax* cf. *epsilonus* THOMAS
右下臼齒列 (Lower right molars)
(enlarged)

顎臼齒ノ珙瑯質ノ模様ハ外側ニ於テハ二個ノ後方ニ曲レル入り込ミアリ。内側ハ第一臼齒ニ於テハ二個、第二及ビ第三臼齒ニ於テハ一個ノ前ニ向ヘル入り込ミヲ有ス。下顎臼齒ハ内側ハ第一臼齒ハ三個、第二及ビ第三臼齒ハ二個、前ニ向ヘル入り込ミアリ。外側ハ各齒共二個ノ後方ニ向ヘル入り込ミヲ有ス。

頭骨測定表 (單位耗)

	第一號	第二號	第三號	第四號	第五號	既載 <i>M. epsilonus</i>
最大長	53	54	48	49.7	49	49.5
基底大長	48	48.5	44	45	43	
最大幅	36	37	33	34	31	37
吻長	20	21.7	19.5	19.5	18.5	
眼前孔間ノ最小幅	13	13.2	12	11.5	11.8	
前顎骨部ノ最小幅	—	—	17.5	16.5	—	
眼窩間表面ノ最小幅	6.5	—	6.3	6.3	6.8	
顛頂骨兩畝間ノ幅	8	—	7.5	8.5	9.	8
顛頂骨幅	17	—	16.8	16.5	16.8	
顛頂骨長	11.5	—	10	11	10.3	
口蓋小長	27.3	29.5	25.5	26	25.8	25.7
門齒孔	6	6	5.5	5.8	5.6	5.8
鼻骨長	19	19.5	19	18	17	18.3
鼻骨幅	9	10	9	8.5	8	9
後頭大孔最大幅	7.5	7.5	7.5	6.5	7	
同最大高	7	8	7.5	8.3	9	
後頭三角幅	33.5	35	28.3	28	27	
齒間隙	17.2	17	16	15.5	15	
上臼齒列	12.2	12	12	12	11.3	11

下顎骨測定表

	第一號	第二號	第三號	第四號
最大長	35	34	32	33
最大高	25	24	19	—
第一臼齒ノ前ノ下顎體高	11	11.5	10	10
第一臼齒ノ前ノ下顎體厚	6	5.5	5.5	—
下臼齒列	12	12.5	12.5	—

Microtis maekawai sp. nov.

(挿圖第 14, 15)

發掘品。頭骨後半缺損セル破片ト左側下顎骨。

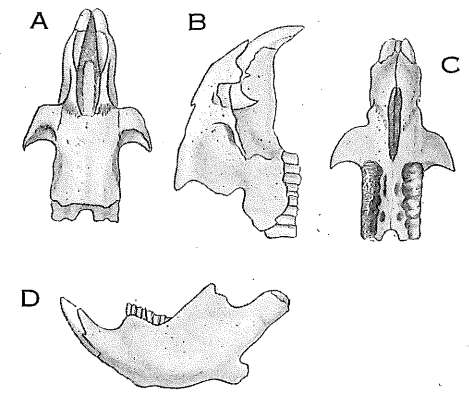
特徴。本標本ハ北支那周口店ヨリ出土シタル *M. epiratticeps* YOUNGニ似タレド、形小サク、門齒孔著シク長ク、眼窩間部ノ幅廣ク、且口蓋部ノ著シク狭キコトニヨリ區別セラル。

頭骨ノ記載。頭骨ハ *M. epiratticeps* ヨリ小サク、吻ハ細ク眼窩間部ヨリ僅ニ廣シ。鼻骨ハ楔形ニシテ後方程狭ク、前方ノ半バニモ及バズ。而シテ後端ハ前上顎骨ノ鼻枝端ニ達セズ。門齒孔ハ甚ダ長クシテ狭ク、門齒ノ後 2.5 mm. 邊ヨリ第一臼齒槽ノ邊マデ達ス。口蓋部ハ極メテ狭ク、第一臼齒槽ノ幅ニ略等シ。コノ口蓋部ニハ中央縦軌アリ。ソノ兩側ニアル縦孔モ著シ。

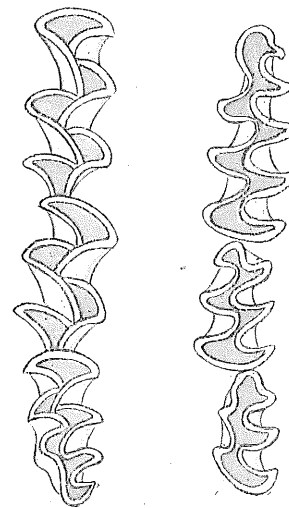
眼窩間部ハ幅廣ク、中央縦ノ凹ミアリ。下顎骨ハ稍纖細ニシテ、門齒ト臼齒トノ間隙ハ短カク、顆狀突起ハ稍内方ニ曲レリ。

齒ノ記載。臼齒ノ珙瑯質ノ皺曲ハ *M. epiratticeps* ニ類似ス。即チ M^1 ハ四個ノ完全三角ト一個ノ前環ヲ有シ、斯克シテ内外側ニ二個ノ凹角ト三個ノ凸角ヲ有ス。 M^2 ハ三個ノ三角ト一個ノ前環ヲ有シ、其ノ結果内側ニ二個ノ凸角ト一個ノ凹角、外側ニ三個ノ凸角ト二個ノ凹角ヲ有ス。 M^3 ハ三個ノ三角ト各一個ノ前後環ヲ有ス。後環ハ内側ニ向フ C 形ヲナシ、後方ニ突出スル突起ナシ。斯克シテ四個ノ凸角ト三個ノ凹角ヲ内側ニ、三個ノ凸角ト二個ノ凹角ヲ外側ニ有ス。

下顎ノ臼齒 M_1 ハ五個ノ完全三角ト前後環ヲ有シ、完全三角ノ中、前端ノモノハ前環ト接續セリ。斯克シテ凸角ハ内側ニ五個、外側ニ四個、凹角ハ内側ニ四個、外側ニ三個ヲ有ス。 M_2 ハ四個ノ完全三角ト一個ノ後環ヲ有シ、内外側共ニ各三個ノ凸角ト、二個ノ凹角ヲ有ス。 M_3 ハ三個ノ環ヲ有シ、内外側共各三個ノ凸角凹角ヲ有スレド内側ノ



挿圖 14. Text-fig. 14. *Microtis maekawai* TOK. et MORI
頭骨 A. 上面 B. 側面 C. 下面 (ABC cranium)
D. 下顎骨左側面 (mandible) ($\times 2$ nat. size)



挿圖 15. Text-fig. 15. *Microtis maekawai* TOK. et MORI
A. 右上臼齒列 (Upper right molars)
B. 右下臼齒列 (Lower right molars)
($\times 12$ nat. size)

凸角特=著シ。

頭骨破片測定表 (單位耗)

門齒前縁ヨリ第三臼齒後縁マデノ長サ	13.8
齒門隙	6.6
吻ノ基部ニ於ケル頭骨幅	5
門齒間表面最小幅	3.8
前顎骨部ノ幅	3.8
門齒孔ノ長	4
上臼齒列	5.6

下顎骨測定表 (單位耗)

最大長	16.5
下顎齒ノ全長	10.0
下臼齒列	5.6
齒間隙	3.4
第一臼齒ノ前部ニ於ケル下顎骨高	3.0

本學名ハ余等ガ瀋陽關鎮化石發掘ノ端緒トナレル前川福右衛門氏ノ盡力ニ對シ、敬意ヲ表シテ命名センモノナリ。

Citellus tomanensis sp. nov.

(第2圖版7, 9, 挿圖第16)

發掘品。頭骨(顴骨弓及鼻骨ヲ缺ク)破片(基型標本)、及下顎骨(副基型標本)其他數個ノ頭骨破片及下顎骨。

特徴。本種ハ *Citellus mongolicus* M. EDWARDS ニ似タレド、後者ヨリ大形ニシテ、著シク長キ門齒孔及長キ外後頭骨突起ヲ有ス。



挿圖 16. Text-fig. 16. *Citellus tomanensis* TOK. et MORI 右上臼齒列 (Upper right molars) (nat. size)

頭骨ノ記載。頭骨ハ *C. mongolicus* ヨリ著シク大形ニシテ、全形ハ前顴骨部ノ狭キニヨリ楔形ヲ呈ス。背部輪廓ハ鼻骨ノ前端ヨリ三角縫合マデ凸形ヲ呈シ、腹部輪廓ハ背部程ニ非ザレドモ凸形ナリ。而シテ後頭髁ハ上ヨリ見得ル程突出セリ。腦筐ハ上方ヨリ見レバ廣卵形ニシテ、ソノ最大幅ハ前後長ヨリ小ナレド、後眼窩間部ヨリハ大ナリ。三角隆起ハ著シカラズ。矢狀櫛ハ發達セザレド明瞭ナリ。後頭部ハ低ク全形 *C. mongolicus* ニ似タレド、外後頭突起ハ後者ヨリ長ク、ソノ先ハ後頭顆ノ level ヲ越エテ下方ニ延ブ。聽胞ハ *C. mongolicus* ニ似タレド

大形ナリ。

眼窩間部ハ廣サヨリモ長ク、ソノ最小幅ハ後眼窩間部ノ幅ヨリモ小ナリ。ソノ上面ハ殆ド扁平ナレド、兩側縁ハ少シク高マレリ。後眼窩突起ハヨク發達シ後下方ニ曲レリ。吻ハ稍短ク頭骨全長ノ三分ノ一位ニシテ、後方ハ前方ヨリ幅廣シ。口蓋骨ハ縱長ニシテ、中央縱畝ガ門齒孔ヨリ後縁ノ鈍突起マデ走レリ。門齒孔ハ極メテ長ク *C. mongolicus* ノ一倍半ノ長サアリ。下顎骨ハ重厚ニシテ、嘴狀突起ハ長クシテ曲リ前縁凸形ナリ。顆狀突起ハソノ外側深ク凹形トナリ、角狀突起ハ廣クソノ前方ハ次ニ顆體ニ移レリ。

齒ノ記載。上顎門齒ハ強大ナラザレド、内柱ハ吻ノ外側ヲ前眼孔マデ走レリ。ソノ瑛瑯質面ハ滑ニシテ橙黃色ヲ呈ス。下顎門齒ノ内柱ハ M_3 ヲ少シク越エテ後方ニ達ス。頰齒ハ *C. mongolicus* ニ齒冠瑛瑯質ノ模様類似スレド、大サ大形ナリ。

頭骨測定表 (單位耗)

	第一號	第二號	第三號
最大長	49	—	—
眼窩内表面最小幅	11.5	12	11.5
眼窩後方最小幅	15	15.5	—
鼻骨ノ前ニ於ケル吻ノ幅	9.2	—	9.5
吻ノ幅	16	17	15.7
眼前孔内ノ最小幅	11.5	11	11.5
口蓋小長	28	29	26.5
第一臼齒間ノ口蓋幅	16	16	16
門齒孔長	5	5	4.8
後頭三角幅	23	—	—
後頭三角高	14	—	—
腦筐幅	—	22	—
上臼齒列(齒槽)	12.7	13	13
齒ノ間隙	13	14	13
門齒高	6.5	8.5	7.3

下顎骨測定表

	第一號	第二號	第三號	第四號	第五號
最大長	35	36	—	—	—
最大高	20	19.5	—	—	—
第三臼齒ノ後方ノ下顎體高	9	10	9.4	9.5	10.5
第三臼齒ノ後方ノ下顎體厚	5	4.5	4.7	5	4.7
下臼齒列	12.5	12.5	12.5	12.5	12.5

Capreolus cf. *pygargus ochracea* BARCLAY

(第3圖版6)

發掘品。三枝ヲ有スル完全ナル左側角一個、蹄骨。

角ノ記載。 本標本ハ中等大ニシテ、角座ハ切断面圓形。第一枝ハ角座上 97 mm ヨリ枝出シ、角幹ト八十度ノ角度ヲ示シ、*Capreolus pygargus mantschuricus* NOAK ヨリモ角度大ナリ。角幹ハ最初後方ニ向ヒ、次ニ少シ外方ニ曲ル。第二枝ハ稍短ク下内方ニ曲リ、第一枝ノ上 80 mm ノ邊ヨリ枝出ス。第三枝ハ上方ニ向フ。角幹表面殊ニ内表面ニハ不規則ナル瘤起多數縦ニ走レリ。

測定表 (單位耗)

角座徑	23
第二枝長	70
第三枝長	75
角座ヨリ角先マデノ直徑ノ長サ	248

Cervus elaphus LINNAEUS

(第3圖版4, 5)

發掘品。 (1) 大形左側角破片、(2) 小形右側角破片。

第一角破片記載。 角座強大ニシテ、断面卵形ナリ。第一枝ハ角座近クヨリ派出ス。第二枝ハ第一枝上 111 mm ノ邊ヨリ枝出ス。

角座ノ徑	89×68
角座ノ周圍	240
第二枝上ノ角幹ノ徑	62×54

第二角破片記載。 第一ノ角ヨリ小形ニシテ、角座ノ切断面卵形ナリ。第一枝ハ前者ト同ジク角座近クヨリ派出ス。第二枝ハ第一枝上 100 mm ニ於テ枝出ス。

角座ノ徑	63×54
角座ノ周圍	175
第一枝基部ノ徑	37×26.5
第二枝基部ノ徑	36×23

Cervus elaphus canadensis ERXLEBEN

(第3圖版9)

發掘品。 右側角破片。

記載。 角座強大ニシテ断面橢圓形ナリ。第一枝ハ角座近クヨリ殆ンド角幹ト直角ニテ派出シ、先ハ下方ニ曲レリ。角幹ハ始メハ眞直ニシテ、後ニ上内方ニ曲レリ。第二枝ハ第一枝上 74 mm ニ於テ枝出ス。猶角幹ノ後方ニハ明瞭ナル溝アリ。

角座ノ徑	55×45
角座周圍	140
第一枝上角幹ノ徑	49×37

Megaceros sp.

(第3圖版1, 2, 3, 7, 8,
第4圖版1, 2 挿圖第17)

發掘品。 第一枝ノ基部ヲ有スル左側角下部破片(基型標本)。角幹下部破片。兩側頰齒ヲ有スル口蓋部。左側下顎體破片。P²—M² ヲ有スル左側上顎破片。

特徴。 本種ノ角ハ *Megaceros ordosianus* (YOUNG) ニ似タレド、角幹ノ三條ノ畝不明瞭ニシテ、從ツテ断面三角形ニ非ズシテ橢圓形ナリ。尙下顎骨モ他ノ *Megaceros* 屬ト異ナリソノ體厚薄シ。

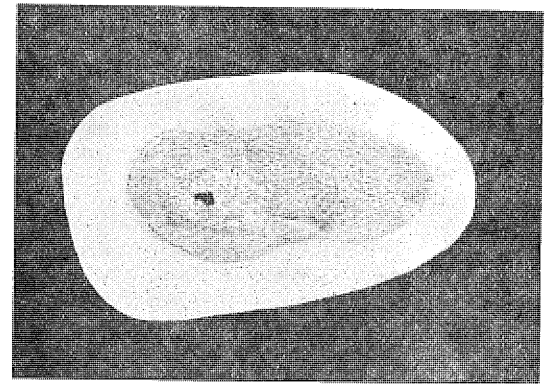
角ノ記載。 基型標本ノ角ハ第一枝ハ角座ニ接シテ派出シ、シカモ角幹ニ對シ横ニ著シク扁タクナリテ出ツ。角幹ノ断面橢圓形ナリ。角座ハ大形ニシテ、稍長方形ニ近シ。角幹ハ角座ヨリ少シク上内方ニ延ブ。角ノ内表面ニハ不判明ナル縱溝アリ。

現存標本ノ最大長	280	224
角座ノ徑	101×91	96×88
角座周圍	320	280
第一枝直上角幹ノ徑	86×72	

齒ノ記載。 齒冠低ク瑛瑯質堅ク、補足錐及礎帶ヨリ發達セリ。上顎頰齒ハ *Cervus elaphus* ニ似タレド、前臼齒ハ臼齒ニ比シ比較的大形ニシテ、且余リ前後ニ側扁セザルコトニヨリ區別セラル。

上顎頰齒測定表 (單位耗)

	潼關鎮標品	<i>M. pachyosteus</i>	<i>C. canadensis fossilis</i>	
第二前臼齒	長	22 - 23	14.5 - 18	14
	幅	17.8 - 18	17 - 18	18
第三前臼齒	長	22 - 22	13 - 17	12.7
	幅	20.5 - 20	18.5 - 20	19.6
第四前臼齒	長	22 - 21	15 - 16	12.8
	幅	20.5 - 19	19 - 22	20.9
第一臼齒	長	27.5 - 26	17 - 20	19.3
	幅	23 - 21.5	21 - 23	23.5
第二臼齒	長	31.5 - 31	20.5 - 23	21.2
	幅	24 - 25	23 - 26	24.6
第三臼齒	長	28 - 30	22.5 - 23.5	22
	幅	21 - 21.5	23 - 26	25.5
頰齒ノ長	139 - 137			



挿圖 17. *Megaceros* sp. 角幹角座ヨリ少シ上部ノ切断面.
Text-fig. 17. Transverse section of horn core at basal part. (3/4 nat. size)

下顎骨體厚ハ *M. pachyosteus* 等ニ比シ薄シ。

下顎頰齒測定表

	第三前白齒		第四前白齒		第一白齒		第二白齒		第三白齒	
	長	幅	長	幅	長	幅	長	幅	長	幅
潼關鎮標品	21	9.5	22	14	25	15	28.7	13.5	37	13
<i>Megaceros pachyosteus</i>	13-18	9.5-10.5	14.5-17	11-13	19-23	15-16.5	21-25	16-17	27-35	16-17
<i>Cervus canadensis fossilis</i>	14.4	9.6	14.4	9.6	19.5	11.5	20.2	16.6	30.7	17.2

***Bos primigenius* BOJANUS**

(第4圖版3)

發掘品。M₃ヲ有スル左下顎骨破片。角ノ破片。掌骨一個。

下顎骨破片ノ記載。M₃ハヨク磨削シ、前後ニ延長セリ。ソノ齒ノ前葉及中葉ハ高く、兩者ノ間ノ谷ハ深シ。内稜角ハ外稜角ヨリ高く、外補足柱ハ著明ニシテ齒坎ハU字形ヲ呈スレドソノ角短シ。珽瑯質ノ層ハ稍厚ク、幅2.5mmアリ。

	長	幅	齒冠高(外側)
第三白齒	49	20	18

角破片ノ記載。角ハ極メテ小ナル破片ナリ。

現存角ノ最大長	126
同最大周圍	153

掌骨ノ記載。Sjara-osso-golヨリ出デタル掌骨ニ比スレバ、長サ稍短クシテ太シ。

最大長	252
上端最大幅	94
下端最大幅	98
中央横徑	64

***Bison exguus* MATSUMOTO**

(第4圖版4)

發掘品。左角(先ノ方缺損)ヲ有スル頭骨破片。掌骨一個。

記載。前頭部ハ少シク凸形ナレド、中央縦ニ少シク凹形ナリ。角ハ著シク後方ニ向フ。ソノ上表面ハアル距離下方ニ曲レド、下表面ハ曲ラズ。斷面ハ略同形ニ近ク、下表面ニハ著シキ縦溝多數走レリ。

兩角間距離	200×2=400
角柄周圍	33.5
角幹基部最大周圍	370

角幹基部横徑	112
角幹基部上下徑	118
下緣ニ沿ヒ現存角ノ最大長	250

掌骨ハ本種ニ屬スルモノナラン。長サ短クシテ太キコト特徴ナリ。

最大長	225
上端最大幅	90
下端最大幅	85
中央横徑	58

***Ovis* cf. *ammon* (LINNAEUS)**

(第4圖版5, 6)

發掘品。頭骨後半(角根元缺損)破片。右側小ナル角ノ破片。

特徴。標品ハ保存ノヤヤ不良ナルニヨリ正確ニ原形ヲ知り得ザレドモ、從來滿蒙ニ於テ發掘セラレタルモノニ比スルニ、後頭三角上邊ニ於ケル結節著大ニシテ、後頭孔又少シク大ナリ。

記載。左右兩角共ソノ基部ヨリ破損セリ。頭頂骨上面ハ大キク盆狀ニ淺ク窪ミ、頭頂側部ノ膨ラミ少シ。左角ハソノ角座ヲ僅カニ止ム。後頭三角ハ著シク後出シ、ソノ上邊ハ頭頂後邊ノ甚シキ低下ニヨリテヤヤ不明瞭タルモ、結節ハ上部結節後頭骨ノ左右ニアリテ瘤様ヲ呈シテ著大ナリ。後頭骨ノ後出強ク、後頭孔ハ卵形ヲナシテ中庸大ナリ。後頭錐狀突起ハ短カケレドモ太ク、後頭基底骨ハ巾廣クシテ、正中線ハ溝ヲナシ、ソノ基部及ビ楔狀骨トノ接合部ニ斜出セル隆起帶ノ存在アリ。鼓骨ヲ缺失スレドモ、骨質聽外口ハ後頭岩様突起ニ接シテ稍後方ニ開口シ、卵形ヲ呈ス。

	潼關鎮發掘品	赤峯發掘品
頭頂骨巾(角座骨基部ニ於テ)	150.0	—
後頭三角窩(後頭孔上緣ヨリ)	41.0	38.0
同(後頭孔下底ヨリ)	64.0	62.0
同 基底邊巾	136.0	139.0
後頭孔、上下徑×左右徑	24.0×28.0	23.0×26.0
後頭髁突出度	35.0±	31.0±
後頭髁、巾×高	83.0×45.0	81.0×43.0
後頭基底骨巾	54.0	49.0
後頭錐狀突起高	18.0	21.0
骨質聽道外口長徑×短徑	8.5×6.0	8.0×6.0

右側角片。先端ノ小破片ナリ。前面廣クシテヤヤ丸ク、上面ハ後方ニ向ツテ少傾スルモ、僅カニ窪メリ。下底ハ丸味ヲ有シ、爲メニ角片ノ基部ニ於テハ類圓形ノ斷面ヲ呈ス。角面ハ滑カナリ。

角基部ニ於ケル前後徑×上下徑	86.0×80.0
----------------	-----------

Equus cf. przewalskii PALIAKOFF

(第5圖版1, 2, 3, 6, 8)

發掘品。 頰齒全長186 mm ヲ有スル右上顎破片。頰齒全長182 mm ヲ有スル左上顎破片。頰齒全長148 mm ヲ有スル左上顎破片。右側 P⁴—M²、左側 P²—M² ヲ有スル口蓋骨破片。頰齒全長189 mm ヲ有スル右下顎骨破片。頰齒全長180 mm ヲ有スル左下顎骨破片。門齒及犬齒ヲ有スル下顎骨前部破片。四個ノ掌骨。六個ノ蹠骨。一個ノ脛骨。脊椎骨。第二頸椎。第七頸。第四腰椎。第五腰椎。

以上ノ外個々分離セル齒、肢骨、脊椎骨等。

頰齒ノ記載。 頰齒ハ *E. przewalskii* ニ形及大サニ於テ異ナルコト少ナシ。前臼齒ハ M³ ヲ除ク臼齒ニ比シ比較的ソノ形大ナリ。此等ノ點ハ *E. hemionus* ト異ナル所ナリ。

	第二前臼齒		第三前臼齒		第四前臼齒		第一臼齒		第二臼齒		第三臼齒		全頰齒ノ長サ
	長	幅	長	幅	長	幅	長	幅	長	幅	長	幅	
上顎頰齒 右	42	28	31	27	33	30	27	28	29	27	30	25	186
同 上 右	40	27	32	28	30	30	28	28	27	27	32	26	182
同 上 左	40	26	34	32	29	30	26	28	25	27	32	26	184
下顎頰齒 左	37	17.5	28.5	18	28.5	20	27.5	20	29	18	38	16.5	180
同 上 右	36	16	31	18	30	16	28	16	29	15	34	14.5	189
口蓋部	第二前臼齒ト第三前臼齒トノ間ノ幅(齒ヲ含ミ)								80				
同 上	第四前臼齒ト第一臼齒トノ間ノ幅(齒ヲ含ミ)								125				

下顎骨ノ記載。 下顎骨ハ重厚ニシテ大形ナリ。殊ニ下顎骨聯合ハ極メテ大形ナリ。下顎骨ノ下緣ハ殆ンド眞直ナリ。

第三門齒ノ兩齒槽後緣間ニ於ケル下顎骨ノ幅	81
下顎骨聯合ノ長	106
第三門齒ト犬齒トノ間隙	10.5
第二前臼齒ノ下ノ下顎體厚	25

肢骨ノ記載。 肢骨ハ馬ノ中ニテモ重厚ノ部ニ屬ス。ソノ最大長ト中央最小幅トノ比ハ、腕骨ニテハ 100:12.8 蹠骨ニテハ 100:12.1 ナリ。

掌骨最大長	244	235	232	230	
同 上端最大幅	59	60	60	53	
同 下端最大幅	56	52	58	49	
同 中央最小幅	31	30	31.5	28	
蹠骨最大長		278	273	266	270
同 上端最大幅		55	56	54	55
同 下端最大幅		54	56	50	50
同 中央最小幅		32	34	33	33
脛骨最大長	323				
同 上端最大幅	84				
同 下端最大幅	73				
同 中央最小幅	37				

Equus przewalskii POL. subsp.

(第5圖版5, 7, 11)

發掘品。 右側 P²—M³、左側 P²—P³ ヲ有スル口蓋骨破片。右下顎頰齒ノ一揃。完全ナル掌骨一個。

特徴。 本標品ハソノ形 *E. przewalskii* ニ似タレド、形著シク小サシ。而シテソノ大サ及形ハ現存ノ朝鮮矮馬ニ似タリ。此差アルヲ以テ *E. przewalskii* ノ一亞種トス。

測定表(單位耗)

上顎頰齒	第二前臼齒		第三前臼齒		第四前臼齒		第一臼齒		第二臼齒		第三臼齒		全頰齒ノ長サ
	長	幅	長	幅	長	幅	長	幅	長	幅	長	幅	
潼關鎮(右)	37	23	25.5	25	25	23.5	22	24	23.5	22.5	23	18.5	158
朝鮮矮馬	35	23.5	28	25	26.5	23.5	24	22.5	23.5	22	24	18.5	159
下顎頰齒	第二前臼齒		第三前臼齒		第四前臼齒		第一臼齒		第二臼齒		第三臼齒		全頰齒ノ長サ
	長	幅	長	幅	長	幅	長	幅	長	幅	長	幅	
潼關鎮(右)	32	13	28	15.5	24.5	14	23	13	23.5	13	29	13	157
朝鮮矮馬	32	13	26	13.5	26	14	24	14	24.5	13.5	27	13	160
掌骨最大長												216	
同 上端最大幅												54	
同 下端最大幅												54	
同 中央最小幅												30	

Equus sp.

(第5圖版4)

發掘品。 左上顎頰齒。蹠骨一個。

記載。 左上顎頰齒ノ標本ハ馬ノ中ニテモ大形種ニ屬シ、各頰齒共外側前及中稜ヨク發達ス。本種ノ特徴トスル所ハ前内柱ノ極メテ大ニシテ長ク、各齒ノ長サノ 1/2 ヨリ大ナルコト、前及後ノ半月形内珠瑯輪ノ數曲 *Hipparion* ノ如ク極メテ甚シキコトナリ。前後内柱ノ間ニアル距ハ極メテヨク發達ス。

第二前臼齒	第三前臼齒	第四前臼齒	第一臼齒	第二臼齒	第三臼齒	全頰齒ノ長サ						
長	幅	長	幅	長	幅	長	幅	長	幅	長	幅	
40	28	33	30	32	30	27	29	27	27	32	25	193

蹠骨モ他ノ馬ノモノニ比シ巨大ニシテ、本種ニ屬スベキモノナラン。

最大長	282
上端最大幅	59
下端最大幅	57
中央最小幅	37

Rhinoceros antiquitatis BLUM.

(第6圖版1, 2, 3, 5)

發掘品。右側上顎 P³ - M³ ヲ有スル一齒列。左側下顎骨乳齒 D₁ - D₄ ヲ有スルモノ。鼻骨破片。其ノ他左側上顎第三前白齒。右側上顎第二前白齒等。

記載。右側上顎 P³ - M³ ヲ有スル一齒列ニテハ、P³ ハ前半缺ケタル破片ニシテ強ク削磨セラレ、後半部ニ二個ノ fossette アリ。P⁴ モ強ク削磨セラレ、二個ノ fossette ト中央大ナル内側ヨリノ入り込ミアリ。コノ入り込ミニ metaloch ヲリ crochet 突出ス。M¹ ノ中央大ナル入り込ミハ protoloch ト metaloch トノ結合ニヨリ fossette ニナリ都合三個ノ fossettes アリ。M² ハ此ノ類ノ模型的形ヲナシ、ヨク發達セル ectoloch ト二個ノ斜メニ走レル横畝ヨリナリ、metaloch ヲリ crochet 突起ヲ、ectoloch ヲリ crista 突起ヲ出セド、protoloch ハ後方ニ antecrochet 突起ヲ出サズ。M³ ハ適當ニ削磨セラレ、一個ノ fossette トヨク發達シタル中央入り込ミアリ。

若キ左側下顎骨ニテハ、D₁ ハ極メテ小サクシテ削磨セラレズ。D₂ ト D₃ トハ少シク削磨セラレ、顎骨ヨリ高クツキ出テヲレド、D₄ ハ殆ンド齒槽中ニアリ。D₁ ノ外ハ W 字狀ヲナシ、ソノ角稍圓味ヲ帶ブ。

齒ノ測定表

	第二前白齒	第四前白齒	第一白齒	第二白齒	第三白齒
永久齒上顎	長 幅	長 幅	長 幅	長 幅	長 幅
	29 47	41 48	48 50	62 49	52 38
乳齒下顎	第一乳齒	第二乳齒	第三乳齒	第四乳齒	
	長 幅	長 幅	長 幅	長 幅	
	22.5 12.5	30 16.5	39.5 20.5	48 21	

下顎骨ノ測定表

現存下顎骨全長	274
第四乳齒ノ前ニ於ケル下顎體高	63
第四乳齒ノ前ニ於ケル下顎體厚	37.5

鼻骨ハ前頭骨ヨリ分離シテ前方ニ突出シ、ソノ上表面ハ角ヲツクル爲メニ小隆起多ク粗雜トナレリ。

Elephas primigenius BLUM.

(第5圖版12)

發掘品。上顎左第二白齒。

記載。本白齒ハ全體トシテ著シク磨削セラレ、ソノ表面稍卵形ヲ呈ス。稜數8個。各稜ハ一文字形ニシテ略平行ニ配列ス。瑛瑯質ハ細緻ナル波狀皺曲ヲナシ、ソノ厚サ約2mmナリ。普遍的 Mammoth ナルガ故ニ詳細ノ記述ヲ略ス。

咀嚼面長	98	最大高	63
同 幅	86	最大稜間距離	6

要 約

上記記述ヨリ推論スルニ潼關鎮化石動物相ハ、肉食獸トシテハ洞穴棲「ハイエナ」位ノモノニシテ極メテ少ナク、之ニ反シ草食獸ハ極メテ多シ。草食獸中ニテハ馬最モ多ク、「モグラネズミ」「ハタリス」鹿類之ニ次ギ、「マムモス」多毛犀野原牛ノ化石ハ比較的少ナシ。而シテソノ草食獸ハ森林棲ノモノヨリモ草原棲ノモノ多ク、シカモ寒地棲ノモノニシテ現今ノ蒙古ノ草原ノ如キ状態ナリシナラント想像セラル。

而シテ是等ノ出土化石中ニ、絶滅種タル「マムモス」、多毛犀、巨角鹿等ノ如キ標準化石ト共ニ現存動物ト同種ノモノアリテ、ソノ地質時代ハ前章ニ述ベシ通り中部更新世ノ最上部、若クハ上部更新世ニ屬ス可ク「ハルビン」顧郷屯ノ地質時代ヨリモ稍新シキ様思考セラル。從ツテ「マムモス」多毛犀巨角鹿洞穴「ハイエナ」等ノ絶滅期ニ相當スルモノナラン。

潼關鎮化石包含層ハ現在ニテハ地表下僅ニ一米半位ノ所ニ存在スレドモ、上層ハ風化浸蝕ニテ削磨セラレタルモノニシテ、ソノ上方ニ猶數米ノ同期地層ヲ有センモノナリシコトハ、煙臺峯ノ高サ其他ノ點ヨリ推定セラル。

次ニ潼關鎮ト同時期ノ化石包含層ト思シキ者ハ、獨リ潼關鎮ニ存スルノミナラズ、豆滿江沿岸ノ朝鮮ノ上三峯、及ビ上三峯ノ對岸滿洲ノ開山屯ニモ存ス。即チ曾テ上三峯ヨリハ *Rhinoceros antiquitatis* 及 *Bison exguis* 等ノ化石出デ、開山屯ヨリハ *Elephas primigenius* ノ化石出土シタリ。

參 考 文 獻 (Literature Cited)

1870 R. OWEN: On Fossil Remains of Mammals found in China. Proc. Geol. Soc. London, Bd. XXVI.
1871 MILNE-EDWARDS: Recherches sur les Mammiferes, pp. 1-394.
1884 A. NEHRING: Fossile Pferde aus deutschen Diluvial-Abgerungel. u. ihre Beziehungen zu den lebenden Pferden, Landwirtsch. Jahrb.
1885 R. LYDEKKER: Catalogue of Fossil Mammalia. British Museum, Part. I-V.
1885 E. KOKEN: Ueber fossile Säugetiere aus China. Paläont. Abh., Bd. III., Heft. 2.
1888 M. WILCKENS: Beitrag z. Kenntniss des Pferdegebisses. Nov. Act. Ksl. Zoop.-Carol. Deutschen Akad. Naturf. Bd. LII, Nr. 5 pp. 259-281, Tafs. 1-8.
1891 W. H. FLOWER: An Introduction of the Study of Mammals, living and extinct.
1891 R. LYDEKKER: On a collection of mammalian Bones from Mongolia. Geol. Surv. India, Vol. XXIV, Pt. 4.
1892 J. D. TSCHERSKI: Beschreibung d. Sammlung posttertiärer Säugetiere. Mem. Acad. Imp. Sci. Petersb, Ser. VII, Vol. XL, No. 1, pp. 1-511.
1898 R. LYDEKKER: Deer of All Lands.
1898-1901 P. M. HEUDE: Memoires Concernat l'Histoire Naturelle de Empire Chinoises, Vol. I-IV.
1903 M. SCHLOSSER: Die fossilen Säugetiere China nebst einer Odontographie der recenten Antilopen. Abhandl. Bayer. Akademie der Wiss II. Cl. XXII, Bd. 1., Abth.

- 1904 J. U. DUERST: Die Tierwelt d. Ansiedelungen am Schlossberge zu Burg an der Spree. Arch. Anthropol. Bd. II, Heft 4, pp. 233-294, Taf. XVI-XX.
- 1907 H. F. OSBORN: Evolution of Mammalian Molar Teeth.
- 1907 W. SALENSKY: Przewalski's Horse. Translated by HAYS & BRADLEY.
- 1907 R. S. LULL: Evolution of the Horse Family. Amer. Journ. Sci., Vol. XXIII.
- 1909 LA BAUME: Beitrag zur Kenntnis der fossilen und subfossilen Boviden.
- 1910 J. U. DUERST: Animal Remains from the Excavation at Anau. In PUMPELLY, R., Explorations in Turkestan. Expedition of 1905, Bd. II, Carnegie Inst. No. 73.
- 1911 S. von SZENTPÉTERY: Schädelbruchstück eines *Cervus euryceros* Cuvier von Olasztelek.
- 1912 O. THOMAS: Revised Determinations of two Far Eastern Species of *Myospalax*. Ann. Mag. Nat. Hist., (8), IX, pp. 93-85.
- 1912 G. S. MILLER: Catalogue of the Mammals of Western Europe.
- 1913-15 R. LYDEKKE: Catalogue of the Ungulate Mammals, Vol. I-IV.
- 1915 H. MATSUMOTO: On some fossil Mammals from Sze-chuan China, Sci. Rep. Tohoku Imp. Univ., Second Ser. (Geology), Vol. III, No. 1.
- 1915 H. MATSUMOTO: On some fossil Mammals from Ho-nan, China, Sci. Rep. Tohoku Imp. Univ., Second Ser. (Geology) Vol. III, No. 1.
- 1918 H. MATSUMOTO: On some fossil Bisontines of Eastern Asia. Sci. Rep. Tokoku Imp. Univ., Second Ser. (Geology) Vol. III, No. 2.
- 1922 O. ANTONIUS; Stammesgeschichte der Haustiere.
- 1924 G. von MERHART: The Palaeolithic Period in Siberia. Contributions to the Prehistory of the Yenisei Region. American Anthropologist. Vol. 25.
- 1923 J. G. ANDERSON: Essays on the Cenozoic of Northern China. Mem. Geol. Surv. China. Ser. A. No. 3.
- 1924 O. ZDANSKY: Jungtertiäre Carnivoren China. Pal. Sin., Ser. C., Vol. II, Fas. 1.
- 1924 M. SCHLOSSER: Tertiary Vertebrates from Mongolia. Pal. Sin., Ser. C., Vol. 1, Fas. 1.
- 1923 O. ZDANSKY: Fossil Hirsche Chines. Pal. Sin., Ser. C., Vol. II, Fas. 3.
- 1925 K. ZITTEL: Text-Book of Palaeontology. Vol. III, Mammalia.
- 1925 O. ZDANSKY: Quartäre Carnivoren aus Nord-China. Pal. Sin., Ser. C, Vol. II, Fas. 2.
- 1926 H. MATSUMOTO: On some fossil Cervids from Shantung, China. Sci. Rep. Tohoku Imp. Univ., Second Ser. Vol. X, No. 2.
- 1926 V. I. TOLMACHEW: Remains of a Mammoth found in Manchuria. Manchuria Research Society, No. 6.
- 1927 C. C. YOUNG: Fossil Nagetiere aus Nord-China. Pal. Sin., Ser. C., Vol. V, Fas. 3.
- 1927 T. RINGSTRÖM: Über Quartäre und Jungtertiäre Rhinocerotiden aus China und der Mongolei. Pal. Sin., Ser. C., vol. IV, Fas. 3.
- 1927 O. ZDANSKY: Weitere Bemerkungen über fossile Cerviden aus China. Pal. Sin., Ser. C, Vol. V, Fas. 1.
- 1927-28 M. WEBER: Die Säugetiere, Bd. I-II.
- 1928 O. ZDANSKY: Die Säugetiere der Quartärfauna von Chou-Kou-tien. Pal. Sin., ser. C, Vol. V, Fas. 4.
- 1929 M. BOULE, H. BREUIL, E. LICENT et P. P. TEILHARD de CHARDIN: Palaeolithique de la China. L'institut de Palaeontologie Humaine, Memoire 4.
- 1929 T. de CHARDIN and C. C. YOUNG: Preliminary Report on the Chou-Koutien fossiliferous Deposit. Bull. Soc. China, Vol. VIII, No. 3.

- 1929 C. C. YOUNG: Notes on the Mammalian Remains from Kwangsi. Bull. Geol. Soc. China, Vol. VIII, No. 2, pp. 125-128.
- 1929 J. P. TOLMACHOFF: The Carcasses of the Mammoth and *Rhinoceros* found in the frozen Ground in Siberia.
- 1929 V. J. TOLMACHOV: Sur le Palaeolithique de la Mandchourie. Eurasia Septentrionalis Antiqua IV.
- 1929 E. LICENT: Palaeontological Research Works of the Hoang-ho Paiho Museum Archaeological Studies, No. 2.
- 1929 G. B. BARBOUR: The Geology of the Kalgan Area. Mem. Geol. Surv. China, Ser. A. No. 6.
- 1930 E. LICENT and P. P. TEILHARD DE CHARDIN: Geological Observation in Northern Manchuria and Barga (Hailar). Bull. Geol. Soc. China, Vol. IX, No. 1.
- 1930 T. DE CHARDIN et Jean PIVETEAU: Les Mammifères fossiles de Nihowan (China). Annales de Palaeontologie, Tom. XIX.
- 1930 P. TEILHARD DE CHARDIN and C. C. YOUNG: Preliminary Observations on the Pre-loessic and Post-Pontian Formations in Western Shansi and Northern Shansi. Geo. Mem. Ser. A. No. 8.
- 1930 C. C. YOUNG: On the Mammalian Remains from Chi-Ku-Shan near Choukou-Tien. Pal. Sin., Ser. C, Vol. VII, Fas. 1.
- 1930 H. MOTOHASHI: Craniometrical Studies on Skulls of Wild Asses from West Mongolia, Mem. Tottori Agr. Coll., Vol. 1, No. 1, pp. 1-62, Pts. 1-5, Tabs. 8-16.
- 1931 W. C. PEI: Mammalian Remains from Locality 5 at Chouk'outien. Pal. Sin., Ser. C., Vol. VII, Fas. 2.
- 1931 W. Pei: Notice of the Discovery of Quartz and other Stone Articles on the Lower Pleistocene Hominid-bearing Sediments of the Choukoutien cave Deposit. Bull. Geol. soc. China, Vol. XI, No. 2.
- 1931 W. C. PEI: On a Collection of Mammalian Fossils from Chiachiasan near Tangshan. Bull. Geol. Soc. China, Vol. IX, No. 4, pp. 371-377.
- 1931 H. BREUIL: Le feu et l'industrie lithique et osséuse à Cou-k'-outien. Bull. Geol. Soc. China, Vol. XI, No. 2.
- 1931 W. C. PEI: The Age of Choukoutien fossiliferous Deposit. Bull. Geol. Soc. China., Vol. X.
- 1931 C. C. YOUNG: Die stratigraphische und palaeontologische Bedeutung der fossilen Nagetiere Chinas. Bull. Geol. Soc. China., Vol. X.
- 1931 T. H. YIN: Sur la découverte d'une faune de mammifères quaternaire aux environs de Kharbine. Bull. Geol. Soc. China, Vol. XI, No. 2.
- 1931 P. TEILHARD DE CHARDIN and C. C. YOUNG: Fossil Mammals from the Late Cenozoic of Northern China. Pal. Sin., Ser. C, Vol. IX, Fas. 1.
- 1932 C. C. YOUNG: On the Artiodactyla from the *Sinanthropus* Site at Choukoutien. Pal. Sin., Ser. C, Vol. VIII, Fas. 2.
- 1932 A. S. LOUKASHIKIN: Recent Discoveries of Remains of Pleistocene Mammals in Northern Manchuria. China Journal, Vol. XVI, No. 6.
- 1932 TEILHARD DE CHARDIN and P. YOUNG: On some Neolithic (and possibly Palaeolithic) Finds in Mongolia, Sin Kiang and West China. Bull. Geol. Surv. China. Vol. XII, No. 1.
- 1932 C. C. YOUNG: On the fossil Vertebrate Remains from Localities 2, 7, and 8 at Choukoutien. Pal. Sin., Ser. C, Vol. VII, Fas. 3.
- 1932 E. LICENT: Les Collections néolithiques du Musée Hoang-ho-pai-ho de Tien Tsin. Publica-

tions du Musée-hoang-ho-pai-ho de Tien Tsin. No. 14.

1932 S. TOKUNAGA and N. NAORA: Fossil Mammals and Human Artefacts excavated near Harbin, Manchukuo. Proc. Imp. Acad. IX, No. 8.

1933 S. TOKUNAGA and N. NAORA: Further Notes on ancient human Artefacts found near Harbin. Proc. Imp. Acad. IX, No. 10.

1933 A. S. LOUKASHKIN: The Post-Tertiary Fauna of Northern Manchuria contemporary with primitive Man. Rep. XVI, Intern. Geol. Congr., Washington.

1933 C. C. YOUNG: Fossil Man and Summary of Cenozoic Geology in China. (中國人類化石及新生代地質概論) Geol. Memoir, Ser. B. No. 5.

1933 大山 栢: 歐洲舊石器時代。

1934 德永重康、直良信夫: ハルビン近郊發掘ノ洪積期人類遺品。人類學雜誌 48 卷、12 號。

1934 德永重康: 熱河省赤峯附近並ニ哈爾濱郊外ヨリ發見セル舊石器時代人類遺品。地學雜誌 46 卷、539 號。

1934 W. C. PEI: On the Carnivora from Locality of Choukoutien. Pal. Sin., Ser. C, Vol. VIII, Fas. 1.

1934 C. C. YOUNG: On the Insectivora, Chiroptera, Rodentia and Primates other than *Sinanthropus* from Locality at Choukoutien. Pal. Sin., Ser. C, VIII, Fas. 3.

1934 W. C. PEI: Choukoutien Excavations, Geol. Mem., Ser. B, No. 7.

1934 德永重康: 橫濱市及神奈川縣柿生村發見ノ象齒化石。地學雜誌、第五百四十六號。

1934 德永重康、直良信夫: 滿洲帝國吉林省顧鄉屯第一回發掘物研究報文、第一次滿蒙學術調查研究團報告第二部、第一編。

1935 O. ZDANSKY: *Equus* u. andere Perissodactyla. Pal. Sin., C, Vol. VI, Fas. 5.

1935 BARCLAY: The Roe-deer of Korea. Ann. Mag. Nat. Hist., London, Ser. 10, Vol. XV, No. 90, pp. 626-627.

1935 A. T. HOPWOOD: Fossil Proboscidea from China, Pal. Sin., Ser. C, Vol. IX, Fas. 3.

1935 C. C. YOUNG, Miscellaneous mammalian Fossils from Shansi and Honan. Pal. Sin., Ser. C, Vol. IX, Fas. 2.

1936 T. de CHARDIN and C. C. YOUNG, On the Mammalian Remains from the archaeological Site of Anyang, Pal. Sin., Ser. C, Vol. XII, Fas. 1.

1936 S. TOKUNAGA and F. TAKAI: A New Roe-deer, *Capreolus* (*Capreolina*) *mayai* n. subgen. and n. sp. from the Inland Sea of Japan. Journ. Geol. Soc. Japan, Vol. XLIII, No. 515, pp. 542-645.

1938 P. T. de CHARDIN and M. TRASSAERT, Cavicornia of South-eastern Shansi. Pal. Sin., New Ser. C, No. 6.

圖 版 說 明

- 第一圖版 潼關鎮發掘ノ光景
- 第二圖版 1 2 4 5 *Hyaena ultima dokantimensis* subsp. nov.
 3 *Hyaena* sp.
 6 8 10 11 *Myospalax epsilanus* THOMAS.
 7 9 *Citellus tomanensis* sp. nov.
 (4 2/5 自然大 他ハ總テ 3/5 自然大)
- 第三圖版 1 2 3 7 8 *Megaceros* sp.
 4 5 *Cervus elaphus* LIN.
 6 *Capreolus* cf. *pygargus ochracea* BAR.
 9 *Cervus elaphus canadensis* ERX.
 (1 2 3 4 3/5 自然大, 5 6 9 3/10 自然大, 7 2/5 自然大, 8 3/11 自然大)
- 第四圖版 1 2 *Megaceros* sp.
 3 *Bos primigenius* BOJ.
 4 *Bison exguus* MAT.
 5 6 *Ovis* cf. *ammon* (LIN.)
 (1 3.6/10 自然大, 2 3 5 3/5 自然大, 4 1/5 自然大, 6 2/5 自然大)
- 第五圖版 1 2 3 6 8 *Equus* cf. *przewalskii* POL.
 5 7 11 *Equus przewalskii* POL. subsp.
 4 *Equus* sp.
 12 *Elephas primigenius* BLUM.
 (1 2 3 8 3/10 自然大, 4 5 6 7 2/5 自然大, 11 12 3/5 自然大)
- 第六圖版 1 2 3 5 *Rhinoceros antiquitatis* BLUM.
 (1 3 5 3/10 自然大, 2 3/5 自然大)

REPORT OF DIGGINGS AT DOKANTIN, THE COAST OF THE RIVER TOMAN, KOREA (Résumé)

By

S. TOKUNAGA and T. MORI

During two weeks, from July 24 to August 1 and from August 8 to 10, 1935, the authors, together with the assistant, Mr. F. S. Cho, excavated a cliff at Dokantin, near the Toman River, in the northern part of Korea.

On the surface of this cliff, which is about 10 metres high, we found scattered about, stone implements and earthenwares of Neolithic age, besides mammalian bones. Upon cutting down a part of the northern side of this cliff, we gathered from somewhat blackish coloured loess remains of *Myospalax*, *Citellus*, and *Cervus*, although from that level down to a depth of 9 metres from the ground surface, where lay the river sand and pebble layer, we found nothing.

Upon cutting down the western side of the cliff, however, we found, in the loess at the depth of 2 metres below the ground surface, numerous specimens of *Hyaena*, mammoth, *Rhinoceros*, *Cervus*, *Bison*, *Bos*, *Equus*, and *Ovis*, those of *Equus* being astonishingly abundant.

In addition to these fossils, a very interesting discovery was the quantity of bone and stone implements—the handwork of ancient man. Besides a few *Myospalax*, there was nothing in the blackish loess underlying the fossiliferous loess just mentioned, neither was there any in the loess that underlay it.

The lowermost layer of this cliff is a river-deposited gravel, but as it gradually transforms to the loess immediately overlying it, the formation of the loess of this particular part shows evidently the sedimentary origin. In the 9 metres of loess above it, however, there is no interstratified sand or gravel layer.

From a comparison, topographically, of this loess cliff and the recent river gravel on banks of the Toman river, the age of the strata including the fossil bearing bed is considered as Pleistocene.

There being only 18 species represented in the fossil mammals unearthed, it is difficult to know their precise geological age from fossil determinations alone, but from a study of the correlations of horizons, the age of the Dokantin zone seems to be slightly younger than that of the Harbin fossil zone, most probably upper Pleistocene or uppermost Middle Pleistocene.

When discovered, bone implements and stone implements were so intermingled with

the mammalian fossils that there is absolutely no possibility of any of them having come from the upper or any other zone. And in absence of any evidence that man from a later age than these mammals had worked up these implements from their bones, it must be conceded that this discovery proves that, in Korea, ancient man was contemporarily with the mammoth.

Hyaena ultima dokantinensis subsp. nov.

(Pl. II. Figs. 1, 2, 4, and 5; Text-figs. 6 and 7)

Materials: Lower jawes (type); the skull without zygomatic arches, right frontal bone, and palate (paratype). Besides these a broken maxilla.

Diagnosis: The lower jaw is closely allied to that of *Hyaena ultima* Mat., but differs from the lower jaw of the latter in having higher mandibular body, larger symphysis, comparatively smaller third and fourth premolars, carnassial blade of first lower molar s-shaped, not crescentic. The skull of this new subspecies differs from that of *H. ultima* in the following points: (1) auditory bullae larger, (2) fourth premolar longer and narrower.

Skull: The skull large, rostrum very broad, broader than breadth of brain-case. Dorsal profile rising gently from nares to front of orbit, then abruptly to a little in front of bregma, behind which it is nearly straight to strongly overhanging lambdoidal region. Brain-case narrow and deep, elongate ovate in outline when viewed from above, its breadth above roots of zygomatic narrower than that of rostrum over canines, its depth through auditory bulla about equal to mastoid breadth, and to distance from bregma to posterior point of occiput. Occiput narrow and high, median longitudinal ridge well developed, posterior surface strongly concave when viewed from the side, condylus prominent, not hidden beneath the projecting lambdoidal region. Auditory bulla rather large, elliptical in outline, with short but large meatal tube. Sagittal and lambdoidal crest well developed, the former dividing just in front of bregma into two ridges curving outward to form posterior border of postorbital process.

Interorbital region rather broad, broader than postorbital region. Nasal short and not as far extending to the posterior termination of the maxillae; premaxillary extending a little beyond middle of nasal and not reaching to the anterior part of frontal; maxillary extending back a little beyond middle of orbit; anteorbital foramen about 11 × 5 m.m. in diameter, over posterior root of third premolar. Palate broad and strongly concave; incisive foramina a little before between canines, about 20 m.m. in length.

Mandible very large, strikingly larger than that of *H. ultima*. The depth very deep, at front of P_4 contained about four times in length; symphysis very large, 52 × 25 m.m. in diameter; angular process small. Lower border convex under M_2 and concave under P_2 .

Teeth: (1) Upper permanent dentition.

P_1 , always present and small, transverse diameter about equal to longitudinal in alveoli.

P₂, with faint anterior and posterior accessory cusp, rather oblong in outline. P₃, relatively simple. Along the antero-internal side of the protocone, a ridge is connected with the developed cingulum, posterior accessory cusp present, and about equal to the posterior cingulum. Protocone slightly directed backward.

P₄, long and rather narrow. Deuterocone relatively large and situated anteriorly; parastyle strongly reduced, and strikingly smaller and lower than protocone; and cingulum on anterior side ill-defined, its tip is worn and blunt; protocone high and moderate long and without antero-internal ridge; tritocone strongly prolonged, longer and lower than protocone.

M₁, always absent.

(2) Lower permanent teeth.

The lower incisors and canines are of an ordinary type, but the size is rather smaller than in *H. ultima*.

C, 18 m.m. in diameter at alveolus and about 1 1/2 as long.

P₁ always absent.

P₂, rather large, outline rather oblong, along the anterior side of protoconid, a ridge is connected with the indistinct accessory cusp (parastylid), posterior accessory cusp (metastylid) distinct and rather large.

P₃, with anterior accessory cusp very small and indistinct, posterior accessory cusp distinct but not stronger than cingulum.

P₄, with anterior accessory cusp moderate and posterior accessory cusp rather large and low.

M₁, absolutely characteristic by the relative slenderness and elongation, paraconid longer than protoconid, protoconid relatively small and low, carnassial blade s-shaped, not crescentic, talonid small and cutting, the hypoconid being the only cusp. Metaconid and posterior cingulum faint.

All lower teeth directed backward.

(3) Upper milk teeth.

DC, conical in form and low.

DP₂, crown pointed backwards in an early stage of development. Anterior accessory cusp indistinct, and posterior accessory cusp distinct but small.

DP₃, deuterocone absent. Parastyle large, and with weak cingulum. Protocone longer than parastyle and slightly shorter than tritocone. Tritocone low and cutting.

Cranial measurements: (Length in mm.)

Greatest length without incisor	about 290
Condylo-basilar length	about 270
Basilar length	about 245
Nasal length	65
Nasal breadth	24
Breadth of rostrum over fourth premolar	166
Breadth of rostrum over canine	100

Distance from bregma to posterior point of occiput	130
Interorbital constriction	67
Postorbital constriction	51
Breadth of brain-case	95
Depth of brain-case through auditory bulla	123
Mastoid height	105
Mastoid breadth	130
Height of foramen magnum	20
Breadth of foramen magnum	25
Length of auditory bulla	46
Breadth of auditory bulla	26
Upper teeth row (from behind alveoli of incisor)	130

Measurements of mandible:

Length of mandibular symphysis	55
Breadth of the same	26
Height of mandibular ramus in front of second premolar	46
Height of mandibular ramus in front of fourth premolar	48
Height of mandibular ramus behind first molar	57.5
Thickness of the same	18
Diastema between canine and second premolar	103
Length of cheek teeth	94.5
Greatest length of preserved mandible	197

Upper teeth:

	Canine		Second premolar		Third premolar		Fourth premolar	
	Length	Breadth	Length	Breadth	Length	Breadth	Length	Breadth
<i>H. ultima</i>								
<i>dokantinensis</i>					26	20	44.5	23
"	22	17	19	12.5	25.5	19.5		
" (milk teeth)	15	11	22	17	43	22		
<i>H. ultima</i> MAT.							42	22

Lower teeth:

	Second incisor		Third incisor		Canine		Second premolar		Third premolar		Fourth premolar		First molar	
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.
<i>H. dokantinensis</i>	7	5.5	10.5	10	16.5	16	17.5	13	22	16	22.5	15	34	13
"							15.5	12	22	15	23	14		
"							16.5	12.5	22.5	16	24	15.4	33.5	13.5
<i>H. ultima</i> MAT. (Zdansky)	8.9	5.7	10.4	9.7					25	18.5	25.5	16.3	35.5	14.7
(PEI)									23.6	17.2	25	15.3	31.4	14.1

Hyaena sp.

(Pl. II, fig. 3, Text-fig. 8)

Material: A broken lower jaw with DP₂, DP₃ and DP₄.

Measurements of mandible: (Length in m.m.)

Height of mandible at front of fourth milk premolar	30
Height of mandible behind fourth milk premolar	31
Thickness of mandible behind fourth milk premolar	15.5
Second milk premolar	10.5 × 6.2
Third milk premolar	14 × 7.2
Fourth milk premolar	20 × 7.5

Ochotona sp.

(Text-fig. 9)

Materials: Fragment of left lower jaw.

Measurements: (Length in m.m.)

Length of lower jaw				22.5
Height of vertical ramus	I (3.0)	P ₃ (6.5)	P ₄ (6.8)	
	M ₁ (6.0)	M ₂ (6.0)	M ₃ (5.1)	
Thickness of transverse ramus	I (2.5)	P ₃ (3.0)	P ₄ (4.0)	
	M ₁ (3.3)	M ₂ (3.3)	M ₃ (3.0)	
Length	P ₃ (alveolus) — M ₃ (alveolus)			9.5
Length	P ₃ (alveolus) — P ₄			4.0
Length	M ₁ — M ₃ (alveolus)			5.5
	Length of tooth	Breadth of tooth		
I (alveolus)	2.0	2.5		
P ₃ (alveolus)	2.0	2.0		
P ₄	2.0	2.0		
M ₁	2.1	2.0		
M ₂ (alveolus)	2.5	2.5		
M ₃ (alveolus)	2.0	2.5		

Myospalax epsilanus THOMAS

(Pl. II, figs. 6, 8, 10 and 11. Text-figs. 9, 10 and 11)

Myospalax epsilanus THOMAS, Ann. Mag. Nat. Hist., (8), iv, P. 503, 1909, nec M. EDWARDS (Khingian Mts.).

Myospalax epsilanus THOMAS, Ann. Mag. Nat. Hist., (8), lx, p.p. 94-95, 1912 (Khingian Mts.).

Siphneus sp. a, TOKUNAGA & NAORA, Rep. 1st Sci. Exped. Manchoukuo, Sect. II, Pt. 1, pp. 54-56, 1934.

Siphneus manchoucoreanus, MORI, Journ. Geol. Soc. Japan, Vol. 42, No. 501, p. 364, 1935 (Dokantin).

Materials: Rather complete skulls (five) and mandible (four). Besides these several limb bones.

Cranial measurements: (Length in m.m.)

	No. 1	No. 2	No. 3	No. 4	No. 5	<i>M. epsilanus</i>
Greatest length	53	54	48	49.7	49	49.5
Basal length	48	48.5	44	45	43	(Condylol-basal 1.)
Greatest breadth	36	37	33	34	31	37
Length of rostrum (from incisor to forepart of first molar)	20	21.7	19.5	19.5	18.5	
Minimum breadth of premaxillary part	—	—	17.5	16.5	—	
Interorbital constriction	6.5	—	6.3	6.3	6.8	
Breadth across ridges on parietals	8.	—	7.5	8.5	9.	8.
Parietal breadth	17	—	16.8	16.5	16.8	
Parietal length	11.5	—	10	11	10.3	
Palatilar length	27.3	29.5	25.5	26	25.8	25.7
Incisive foramina	6	6	5.5	5.8	5.6	5.8
Nasal length	19	19.5	19	18	17	18.3
Nasal breadth	9	10	9	8.5	8	9
Height of foramen magnum	7	8	7.5	8.3	9	
Breadth of foramen magnum	7.5	7.5	7.5	6.5	7	
Mastoid breadth	33.5	35	28.3	28	27	
Diastema	17.2	17	16	15.5	15	
Length of upper molar series	12.2	12	12	12	11.3	11

Measurements of mandible:

	No. 1	No. 2	No. 3	No. 4
Greatest length	35	34	32	33
Greatest height	25	24	19	—
Depth of forepart of first molar	11	11.5	10	10
Thickness of the same	6	5.5	5.5	—
Length of lower molar series	12	12.5	12.5	—

Microtus maekawai sp. nov.

(Text-fig. 14)

Materials: A fragmental skull without posterior part (type), and a left lower jaw (paratype).

Diagnosis: This species allied to *M. epiratticeps* YOUNG, Choukoutien, North China, but differs from it in having smaller size, longer incisive foramina, rather broader interorbital region, and narrower palate.

Skull: The skull is smaller than *M. epiratticeps*. Rostrum slender, scarcely wider

than interorbital region; nasals strongly cuneate, their combined width posteriorly much less than half that anteriorly, and not extending to the end of nasal branches of premaxillaries; incisive foramina very long and narrow, extending from about 2.5 m.m. behind incisors to before level of molar alveoli. Palate very narrow, about equal to the width of alveolus of M_1 , marked by two longitudinal grooves continued back from incisive foramina to lateral bridges of posterior border, median posterior ridge, and lateral pits well defined, the anterior border of pits on a level with anterior border of M_3 . Interorbital region rather broad, with a median longitudinal depression. Mandible rather delicate, diastema rather short, articular process slightly bent inward.

Teeth: The teeth resemble those of *M. epiratticeps* by the following characteristic points.

- (1) M_3 with one additional fold on the inner side.
- (2) M_3 with only four closed triangles, the fifth one more or less confluent with the anterior loop. Posterior loop transversal to the axis of the tooth row.
- (3) M_3 with a distinct first outer fold.

Cranial measurements: (Length in m.m.)

Length of skull from anterior margin of incisor to posterior margin of third molar	13.8
Diastema	6.6
Breadth of skull at the root of rostrum	5
Interorbital constriction	3.8
Breadth of premaxillary part	3.8
Length of incisive foramina	4.
Length of upper molar series	5.6
Greatest length	16.5
Length of lower molar series	5.6
Diastema	3.4
Depth at forepart of first molar	3

Citellus tomanensis sp. nov.

(Pl. II. figs. 7, 9; Text-fig. 16)

Materials: The skull without zygomatic arches and nasals (type), and lower jaw referring to the same species (paratype). Besides these several broken skulls and lower jaws.

Diagnosis: This species is allied to *C. mongolicus* MILNE-EDWARDS, but differs from the latter in having larger size, strikingly longer incisive foramina and longer paroccipital process.

Skull: The skull is strikingly larger than that of *C. mongolicus*, and its general form cuneate due to the narrowness of anterior zygomatic region. Dorsal profile convex from front of nasals to lambdoid ridge; ventral profile similar, though less strongly convex; posterior portion of brain-case slightly convex, and occipital condylus projecting sufficiently to be just visible from above. Brain-case broadly ovate when viewed from

above, its greatest width smaller than length, its posterior width obviously exceeding than that at postorbital constriction; surface rather rounded; lambdoid crest less evident; sagittal crest less developed, but evident. Occiput rather low, its general form as in *C. mongolicus*; paroccipital process longer than the latter, their extremities reaching to level of lower edge of condyle; basioccipital essentially like of *C. mongolicus* in general form; auditory bullae like that of *C. mongolicus*, but larger. Interorbital region longer than broad, its least width less than that of postorbital constriction, its surface nearly flat except for the curve of which it forms apart; edges of orbits slightly raised above the general level, supraorbital notch conspicuous; postorbital process well developed, bent postero-downward. Rostrum rather short, nearly one-thirds length of skull, its base broader than anterior region. Palate concave longitudinally, a low but evident median ridge extending from incisive foramina to bent projection at posterior border; incisive foramina very long, more than one and half times as long as that of *C. mongolicus*, and its anterior extremity narrowed to a fine point. Mandible rather robust, the ramus in region near symphysis deeper than wide; coronoid process long and curved, its anterior border convex; articular process deeply concave on outer side; angular process broad, and its anterior limit less defined.

Teeth: Upper incisor less robust, but course of shaft very distinctly marked on side of rostrum from alveolus to anteorbital foramen; cross section of shaft nearly semicircular in outline, the flattened side turned inward; surface of enamel smooth and yellowish orange. Lower incisor with root extending slightly beyond M_3 ; section of shaft and enamel essentially as in upper incisor. Cheek teeth agreeing with those of *C. mongolicus* in general plan of enamel folding, but differing in larger size. Anterior upper premolar simple, terete, its crown with high, median obliquely transverse ridge and small anterior and posterior depression, the area of crown about one half that of succeeding tooth. Molariform teeth resembling each other in general form, each with two roots on outer side and a single larger root on inner side, the inner border of crown formed by a single evident tubercle, its height less than length of base, the width of base decidedly greater than length; main ridges (second and fourth) simple but high, extending to summit of inner tubercle and forming, together with the tubercle, a narrow U-shaped figure; anterior ridge very narrow, at extreme edge of crown, separated from base of second ridge by a conspicuous furrow, its outer extremity forming a slight cusp, its abruptly rounded inner termination lying on anterior surface of base of main tubercle; third ridge represented by a minute cusp between outer extremities of U-shaped figure; posterior margin of crown with a weak ridge terminating internally like anterior ridge, but not extending to outer margin. The principal variations of this pattern, in M_3 , are indistinct in second limb of U, most extending to outer border of tooth, the posterior half of crown occupied by a shallow, basin shaped area usually bearing a low but evident cusp on its inner border. Size of Pm_4 smaller than other molariform teeth. Lower molariform teeth with the same elements as in *C. mongolicus*, but crown higher and more compressed, the cusp high and conspicuous, particularly the antero-internal and antero-external, which are connected by a well developed ridge, inner side of bases of two outer cusps joined by a low ridge; central

depression of the crown deeper.

Cranial measurements: (Length in m.m.)

	No. 1	No. 2	No. 3
Condylar-incisive length	49	—	—
Interorbital constriction	11.5	12	11.5
Postorbital constriction	15	15.5	—
Breadth of rostrum at front of nasals	9.2	—	9.5
Length of rostrum (from incisor to forepart of first molar)	16	17	15.7
Minimum breadth between orbital foramina	11.5	11	11.5
Palatilar length	28	29	26.5
Breadth between both first molars	16	16	16
Length of incisive foramina	5	5	4.8
Mastoid breadth	23	—	—
Breadth of brain-case	—	22	—
Length of upper molar series (alveoli)	12.7	13	13
Diastema	13	14	13
Height of first incisor	6.5	8.5	7.3

Measurements of mandible: (Length in m.m.)

	No. 1	No. 2	No. 3	No. 4	No. 5
Greatest length	35	36	—	—	—
Greatest height	20	19.5	—	—	—
Depth at posterior edge of alveolus of third molar	9	10	9.4	9.5	10.5
Thickness at posterior edge of alveolus of third molar	5	4.5	4.7	5	4.7
Length of lower molar series	12.5	12.5	12.5	12.5	12.5

Capreolus cf. *pygargus ochracea* BARCLAY

(Pl. III. fig. 6)

Capreolus capreolus ochracea, BARCLEY, Ann. Mag. Nat. Hist., London, Ser. 10, Vol. XV, No. 90, p.p. 626-627, 1935.

Materials: A complete left antler with three tines and metatarsus.

Measurements: (Length in m.m.)

Diameter of burr	23
Length of second tine	70
Length of third tine	75
Total length in straight line from the burr to the tip	248

Cervus elaphus LINNAEUS

(Pl. III, figs. 4 and 5)

Cervus elaphus, L., Syst. nat., ed. 12, Vol. 1, p. 93 (1766).

Cervus elaphus, DUERST, Arch. Anthrop. Bd. II, Heft 4, p.p. 279-281, 1904.

Cervus elaphus, LYDEKKER, Cat. Foss. Mamm., Pt. II, p. 94, Fig. 9, 1885.

Cervus elaphus, BOULE & TEILHARD, Palaeolithi. Chine, p.p. 55-57, 1928.

Cervus elaphus, TOKUNAGA & NAORA, Rep. 1st Sci. Exped., Manchoukuo, Sect. II, Pt. 1, p. 64, 1934.

Materials: (1) A fragment of large left antler; (2) a fragment of right antler.

Measurements of (1): (Length in m.m.)

Diameter of burr	89 × 68
Circumference of burr	240
Diameter of beam just above second tine	62 × 54

Measurements of (2):

Diameter of burr	63 × 54
Circumference of burr	175

Cervus elaphus canadensis ERXLEBEN

(Pl. III. Fig. 9).

Cervus elaphus canadensis, ERXL., Syst. Regn. Anim., Vol. 1, p. 305, 1777.

Cervus canadensis fossilis, ZDANSKY, Pal. Sin., Ser. C. Vol. II, Fasc. 3, pp. 80-84, 1915.

Cervus maral canadensis, SEVERTZOW, Turkestan. Jevotnie, p. 103, 1837.

Cervus canadensis, LYDEKKER, Deer of all Lands, p. 94, pl. VI, 1898.

Material: A fragment of right antler with first and second tines.

Measurements: (Length in m.m.)

Maximum diameter of burr	55
Minimum diameter of burr	45
Circumference of burr	140
Diameter of beam just above first tine	49 × 37
Length of preserved part of the beam	

Megaceros sp.

(Pl. III. figs. 1, 2, 3, 7 and 8. Pl. IV. figs. 1 and 2; Text-fig. 17)

Materials: (1) Fragment of proximal part of left antler with basal tine (type).

(2) Fragment of basal part of beam of right antler (paratype).

(3) Upper jaw with both cheek teeth.

(4) Fragment of left upper jaw, bearing P₂ — M₂.

Measurements: (Length in m.m.)

	No. 1	No. 2
Maximum length in preserved beam	380	324
Diameter of burr	101×91	96×88
Circumference of burr	320	280
Diameter of beam just above basal tine	86×72	

Measurements of teeth (Length in m.m.)

	Lower jaw									
	P ₃		P ₄		M ₁		M ₂		M ₃	
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.
Dokantin	21	9.5	22	14	25	15	28.7	13.5	37	13
<i>C. pachyosteus</i>	13-	9.5-	14.5-	11-	19-	15-	21-	16-	27-	16-
	18	10.5	17	13	23	16.5	25	17	35	17
<i>C. canadensis fossilis</i>	14.4	9.6	14.4	9.6	19.5	11.5	20.2	16.6	30.7	17.2

Upper jaw.

	Upper jaw.											
	P ₂		P ₃		P ₄		M ₁		M ₂		M ₃	
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.
Dokantin	22-23	17.8	22-	20.5	22-	20.5	27.5-26	23	31.5	24	28-30	21
			22	21				-31				
<i>C. pachyosteus</i>	14.5-	17-18	13-17	18.5-	15-	19-	17-20	21-23	20.5-	23-	22.5-	23-
	18		20	11	22				23	26	23.5	26
<i>C. canadensis fossilis</i>	14	18	12.7	19.6	12.8	20.9	19.3	23.5	21.2	24.6	22	25.5

Measurement of lower Jaw. (Length in m.m.)

Thickness of ramus before P ₃	13
Thickness of ramus below the middle lobe of M ₃	25

Bos primigenius BOJANUS

(Pl. IV. Fig. 3.)

Bos primigenius, Boj., Nova Acta Ac. Caes. Leop.-Car., Vol. VIII, Pt. 2, P. 422, 1827.

Bos primigenius, MATSUMOTO, Sci. Rep. Tohoku Imp. Univ., Ser., II, Vol. III, No. 1, p. 32, 1904.

Bos primigenius, DUERST, Arch. Anthrop., Bd. II, Heft 4, p.p. 285-290, 1905.

Bos primigenius, BOULE & TEILHARD, Palaeolith. Chine, p.p. 78-80, 1928.

Bos primigenius, TOKUNAGA & NAORA, Rep. 1st Sci. Exped. Manchoukuo, Sect. II, Pt. 1, p.p. 86-88, 1934.

Materials: (1) Small fragment of left mandibular ramus with M₃; (2) small fragment of horn-core.

Measurements: (Length in m.m.)

	Length	Breadth	Height of crown (external side)
M ₃	49	20	18

Maximum length of preserved horn-core	126
Minimum circumference of the same	153

Bison exguus MATSUMOTO

(Pl. IV. fig. 4.)

Bison exguus, MATSUMOTO, Sci. Rep. Tohoku Imp. Univ., Ser., II, Vol. III, p. 32, Pl. XII, Fig. 10; Pl. XIII, Figs. 7 & 8. 1915.

Material: Large fragment of skull with a left horn-core.

Measurements: (Length in m.m.)

Intercornual breadth	200×2=400
Circumference of pedicel	33.5
Circumference of horn-core at base	370
Transverse diameter of the same at base	112
Vertical diameter of the same at base	118
Length of preserved horn-core along lower curve	250

Ovis* cf. *ammon (LINNAEUS)

(Pl. IV. figs. 5 and 6)

Capra ammon, L., Syst. Nat. ed. 10, p. 70, 1757.

Ovis argali, PALLAS, Spicil. Zool. Fasc. XI, p. 20, 1777-80.

Ovis ammon, ERXLEBEN, Syst. Regn. Anim.-Mamm., p. 250, 1777.

Ovis ammon, BOULE & TEILHARD, Palaeolith. Chine, p.p. 69-71, 1928.

Materials: (1) Fragment of posterior part of skull with the basal part of horn-core; (2) fragment of small horn-core, probably of right side, lacking distal part.

Measurements: (Length in m.m.)

Breadth of skull at parietal bone	150.0
Breadth of occipital bone	41.0
Height and breadth of foramen magnum	24.0×28.0
Height and breadth of occipital condyle	45.0×83.0
Breadth of basioccipital bone	54.0

Equus* cf. *przewalskii POLIAKOFF

(Pl. V. figs. 1. 2. 3. 6 and 8.)

Equus przewalskii, POL., Izvestia, Soc. Imp. Russ. Geogr., p. 1, Pls. 1 et 2, 1881.

Equus przewalskii, SALENSKY, Przewalskii horse. 1907

Equus przewalskii, BOULE & TEILHARD, Palaeolith. Chine, p.p. 34-46, 1928.

Equus przewalskii, MOTOHASHI, Mem. Tottori Agr. Coll., Vol. 1, No. 1, 1930.

Equus przewalskii, ZDANSKYI, Pal. Sin., Ser. C, Vol. VI, Fasc. 5, p.p. 48-51, 1935.

Materials:

- (1) Fragment of right maxilla, bearing P₂-M₃, cheek teeth 186 m.m. in length.
- (2) Ditto, cheek teeth 182 m.m. in length.
- (3) Ditto, cheek teeth 184 m.m. in length.
- (4) Fragment of palate, bearing P₄-M₂ of right side and P₂-M₂ of left side.
- (5) Fragment of right mandibular ramus, cheek teeth 189 m.m. in length.
- (6) Fragment of left mandibular ramus, cheek teeth 180 m.m. in length.
- (7) Fragment of anterior part of mandibular ramus, with incisors and canine.
- (8) Four metacarpus.
- (9) Six metatarsus.
- (10) One radius.

Besides these, a number of insignificant teeth, limb bones and vertebrae.

Measurements of upper cheek teeth: (Length in m.m.)

	P ₂		P ₃		P ₄		M ₁		M ₂		M ₃		Length of cheek teeth
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	
Dokantin (1), right	42	28	31	27	33	30	27	28	29	27	30	25	186
Dokantin (2), right	40	27	32	28	33	30	28	28	27	27	32	26	182
Dokantin (3), right	40	26	34	32	29	30	26	28	25	27	32	28	184
<i>E. przewalskii</i>	37	25	29	29	27	29	21	23	21.5	22.5	30	23	} 170-185
"	40	25	29	30	27.5	30	25	28.5	25	28.5	28.5	25	
"	41.5	28	28	30	26.5	30	24.5	29	24.5	28.5	32	24	
"	40	28.5	31.5	31	30	30.5	26.5	30	26.5	28	28.5	24.5	} 165-171
<i>E. hemionus</i>	35	34	28	26	27	25	25	34	26	24	26	23	
"	36	27	30	28	30	28	24	26	29	25	25	25	
<i>E. hemionus</i>	36	25	30	26	26	26	24	24	25	25	25	20	

Measurements of lower cheek teeth:

	P ₂		P ₃		P ₄		M ₁		M ₂		M ₃		Length of cheek teeth
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	
Dokantin (6), left.	37	17.5	28.5	18	28.5	20	27.5	20	29	18	38	16.5	180
Dokantin (5), right	36	16	31	18	30	16	28	16	29	15	34	14.5	189
<i>E. przewalskii</i>	33	17	28	16	28	16	22	15	24	12	32	12	} 167-186
"	35	18	30	18	29	19	26	19	26	17	32	15	
<i>E. hemionus</i>	33	17	31	18	28	18	26	15	24	13	24	13	} 160-167
"	32	14	26	16	24	16	23	14	23	14	28	13	

Measurements of Palate: (Length in m.m.)

Palatal breadth between second premolar & third premolar, including the teeth	80
Ditto, excluding the teeth	78
Palatal breadth between fourth premolar & first molar, including the teeth	125
Ditto, excluding the teeth	81

Measurements of mandible: (Length in m.m.)

Breadth between posterior alveoli of both third incisors	81
Length of symphysis	106
Diastema from third incisor to canine	10.5
Thickness of ramus at under second premolar	25

Measurements of limb-bones: (Length in m.m.)

(a) Metacarpus	Dokantin				<i>E. hemionus</i>		<i>E. przewalskii</i>
	(1)	(2)	(3)	(4)	(1)	(2)	
Greatest length	244	235	232	230	237	213	215
Greatest breadth of the proximal end	59	60	60	53	45	40	48
Greatest breadth of the distal end	56	52	58	49			
Minimum breadth in the middle of the shaft	31	30	31.5	18			32

(b) Metatarsus	Dokantin				<i>E. hemionus</i>			<i>E. przewalskii</i>
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	
Greatest length	278	273	266	270	278	262	250	262
Greatest breadth of the proximal end	55	56	54	55	38	35	38	49
Greatest breadth of the distal end	54	56	50	50	33	35	35	47
Minimum breadth in the middle of the shaft	32	34	33	33				31

(c) Radius	Dokantin		<i>E. hemionus</i>		<i>E. przewalskii</i>
	(1)	(2)	(1)	(2)	
Greatest length	323		285		312
Greatest breadth of upper part	84		66		80
Greatest breadth of lower part	73		67		73
Minimum breadth of narrowest part	37				

Equus przewalskii POL. subsp.

(Pl. V. figs. 5, 7 and 11)

Materials: A series of right upper cheek teeth; a series of right lower cheek teeth; a complete metacarpus.

Measurements: (Length in m.m.)

(a) Upper cheek teeth	P ₂		P ₃		P ₄		M ₁		M ₂		M ₃		Length of cheek teeth
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	
Dokantin (right)	37	23	25.5	25	25	23.5	22	24	23.5	22.5	23	18.5	158
Korean pony, (right)	35	23.5	28	25	26.5	23.5	24	22.5	23.5	22	24	18.5	159

(b) Lower cheek teeth	P		P ₃		P ₄		M ₁		M ₂		M ₃		Length of cheek teeth
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	
Dokantin (right)	32	13	28	15.5	24.5	14	23	13	23.5	13	29	13	157

Korean pony, (right)	32	16	26	13.5	26	14	24	14	24.5	13.5	27	13	160
(c) Metacarpus													
Greatest length													216
Greatest breadth of the proximal end													54
Greatest breadth of the distal end													54
Minimum breadth in the middle of shaft													30

Equus sp.

(Pl. v. fig. 4)

Material: A series of left upper cheek teeth.

Measurements: (Length in m.m.)

P ₂		P ₃		P ₄		M ₁		M ₂		M ₃		Length of cheek teeth
L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	
40	28	33	30	32	30	27	29	27	27	32	25	193

Rhinoceros antiquitatis BLUMENBACH

(Pl. VI. figs. 1, 2, 3 and 5)

- Rhinoceros antiquitatis*, BLUM., Handb. Naturg., 1st French Ed., Vol. II, p. 408, 1803.
Rhinoceros tichorhinus, CUVIER, Oss. Foss., Vol., III, p. 84, Pls. 44-47, 50-52, 1822.
Rhinoceros antiquitatis, LYDEKKER, Cat. Foss. Mamm., Pt. III, p. 92, Fig. 12, 1886.
Rhinoceros antiquitatis, RINGSTROM, Pal. Sin., Ser. C, Vol. IV, Fasc. 3, p.p. 1-2, 1927.
Rhinoceros tichorhinus, BOULE & TEILHARD, Palaeolith. Chine, p.p. 31-37, 1928.
Rhinoceros tichorhinus, BOULE, Ann. Paleo., Tome XIX, Fasc. I-IV, p.p. 17-19, 1930.
Rhinoceros tichorhinus, TOKUNAGA & Naora, Rep. 1st Sci. Exped. Manchoukuo, Sect. II, Pt. 1, p. 90, 1934.

Materials: (1) A series of right upper cheek teeth, bearing P₃-M₃; upper left P₃;
 (2) fragment of young left mandible, bearing D₁-D₄; (3) fragment of nasal bone.

Measurements of (1): (Length in m.m.)

	P ₃		P ₄		M ₁		M ₂		M ₃	
	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.
Dokantin	29	47	41	48	48	50	62	49	52	38
Sjara-osso-gol (BOULE)	38	37	41	31	50	40	55	35	52	28

Measurements of (2):

	D ₁		D ₂		D ₃		D ₄		Total length of D ₁ -D ₄
	L.	B.	L.	B.	L.	B.	L.	B.	
Dokantin	22.5	12.5	30	16.5	39.5	20.5	48	21	139
Sjara-osso-gol (BOULE)	19.5	11.5	25	17	37	22.5	47	25	
Greatest length of preserved mandible									274
Height of mandible at front of fourth milkmolar									63
Thickness of mandible at front of fourth milkmolar									37.5

Elephas primigenius BLUMENBACH

(Pl. V. fig. 12)

- Elephas primigenius*, BLUM., Handb. Naturg., 1st French Ed., Vol. II, p. 407, 1803.
Elephas primigenius, LYDELKER, Cat. Foss. Mamm., B. M., Pt. IV, p. 174, 1886.
Elephas aff. *primigenius*, MATSUMOTO, Rei. Rep. Tohoku Imp. Univ., Ser. II, Vol. III, No. 1, p. 29, 1915.
Elephas primigenius, TOKUNAGA & NAORA, Rep. 1st Sci. Exped., Manchoukuo, Sect. II, Pt. 1, p.p. 102-106, 1934.

Material: Upper left second molar.

Measurements: (Length in m.m.)

Maximum length	95
Maximum breadth	86
Number of Ridges	8

EXPLANATION OF PLATES

- Pl. I. Scene of excavation at Dokantin.
 Pl. II. 1, 2, 4, 5 *Hyaena ultima dokantinensis* subsp. nov.
 3 *Hyaena* sp.
 6, 8, 10, 11 *Myospalax epsilon* THOMAS
 7, 9 *Citellus tomanensis* sp. nov.
 (4 in 2/5 nat. size. All others in 3/5 nat. size)
 Pl. III. 1, 2, 3, 7, 8 *Megaceros* sp.
 4, 5 *Cervus elaphus* LIN.
 6 *Capreolus* cf. *pygargus ochracea* BAR.
 9 *Cervus elaphus canadensis* ERX.
 (1, 2, 3, 4 in 3/5 nat. size. 5, 6, 9 in 3/10 nat. size. 7 in 2/5 nat. size. 8 in 3/11 nat. size)
 Pl. IV. 1, 2 *Megaceros* sp.
 3 *Bos primigenius* BOJ.
 4 *Bison exguus* MAT.
 5, 6 *Ovis* cf. *ammon* (LIN.)
 (1 in 3.6/10 nat. size. 2, 3, 5 in 3/5 nat. size. 4 in 1/5 nat. size. 6 in 2/5 nat. size)
 Pl. V. 1, 2, 3, 6, 8 *Equus* cf. *przewalskii* POL.
 5, 7, 11 *Equus przewalskii* POL. subsp.
 4 *Equus* sp.
 12 *Elephas primigenius* BLUM.
 (1, 2, 3, 8 in 3/10 nat. size. 4, 5, 6, 7 in 2/5 nat. size. 11, 12 in 3/5 nat. size)
 Pl. VI. 1, 2, 3, 5 *Rhinoceros antiquitatis* BLUM.
 (1, 3, 5 in 3/10 nat. size 2 in 3/5 nat. size)

滿洲帝國間島省大馬鹿溝 發掘物調査報告

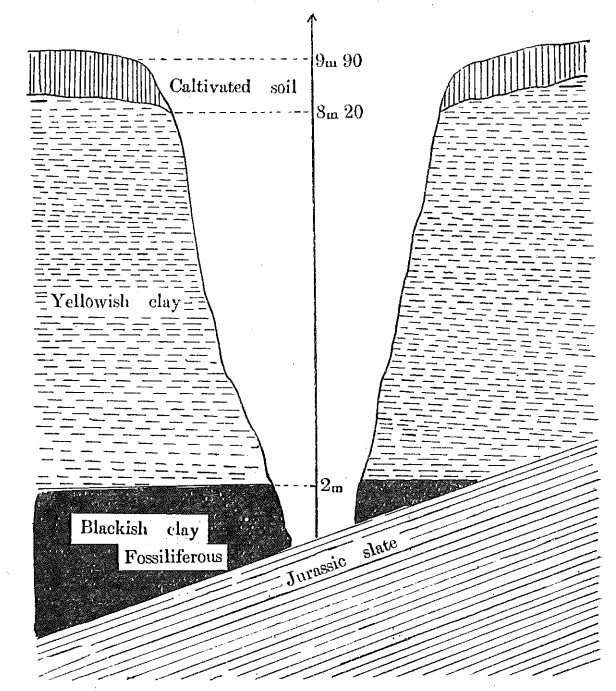
理學博士 德 永 重 康

理學博士 森 爲 三

圖 版 V-VI

第一章 發掘地ノ地學的事項ト遺物ノ出土狀態

遺物發掘地ノ間島省延吉縣尙義鄉大馬鹿溝鹿林洞ハ、以前「mammoth」ノ牙ト臼齒及鹿ノ角等出土セン所ニシテ、「mammoth」ノ肩胛骨ハ間島總領事館ニ、象牙及鹿角ハ龍井村間島中央學校ニ保存セラル（寫眞參照）。由テ著者及ビ助手趙福成ハ昭和十年八月三日記鹿林洞出身ノ中央學校生徒ノ案内ニテ、千葉巡查部長外二名ノ巡查護衛ノ下ニ、龍井村ヨリ西北四里餘アル大馬鹿溝ニ赴キ、「mammoth」ノ牙ヲ發見セン鹿林洞ノ南湯國ヲ訪ネ、同氏ノ案内ニテ化石ノ出土セン溪谷ヲ四箇所視察シ、人夫ノ雇傭方等ヲ依頼ス。八月四日領事館千葉巡查部長外六名ノ巡查護衛ノ下ニ、中央學校所藏ノ器具ヲ以テ人夫ヲシテ四箇所掘ラシメシニ、一箇所ノミ化石出デ、他ハ化石ヲ發見セズ。故ニ一箇所



挿圖 1. 間島大馬鹿溝化石含有層ノ斷面
Text-fig. 1. Section of small valley at Tamalukou

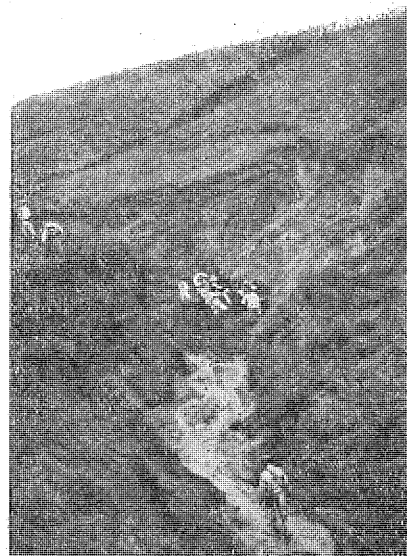
實地調査發掘ニ關スル一切ノ費用并ニ報告出版費ハ總テ外務省文化事業部ノ好意ニ由リ支出ヲ受ケタリ。第一次滿蒙學術調査研究團報告中記載ノ德永重康、直良信夫ノ哈爾濱郊外顧鄉屯發掘物ニ關スル調査ト多大ノ關係アルヲ以テ、此處ニ同報告中ニ編輯出版スルコトセリ。



挿圖 2. Text-fig. 2.
化石發掘地ヨリ大馬鹿溝ヲ望ム



挿圖 3. Text-fig. 3.
大馬鹿溝化石發掘地



挿圖 4. Text-fig. 4.
大馬鹿溝化石發掘地

Text-fig. 2. View of Tamalukou, seen from the fossil locality.
Text-fig. 3. 4. and 5. Fossil localities of Tamalukou.



挿圖 5. Text-fig. 5.
大馬鹿溝ニテ樹木化石ヲ發掘

ヲ、圖ノ如ク溪谷ニ沿ヒ、幅一米半長サ二十米耕土ヲ除去シ、黄色粘土層ヲ六米以上掘リ下ゲ黒土ノ層ニ達シタルニ、多數ノ樹幹化石ガ横倒シニナリ、ソノ下部ヨリ犀ノ齒肢骨破片、馬ノ齒ト

蹄骨、及鹿ノ角破片等出デタリ。然レドモ潼關鎮ノ如ク密集シテ存セズ、保存數モ少ナク且ツ破片ノミニシテ完全ナル化石ナクシテ研究用トナラズ。シカモ人夫ノ多クハ舊共產主義ノ部落ノモノニシテ意ノ如ク働カズ、止ムヲ得ズ發掘三日ニシテ中止シタリ。出土動物目錄次ノ通りナリ。

CERVIDAE: — *Cervus elaphus* L., *Cervus* sp.

EQUIDAE: — *Equus* sp.

RHINOCEROTIDAE: — *Rhinoceros* sp.

ELEPHANTIDAE: — *Elephas primigenius* BLUM.

第二章 大馬鹿溝出土ノ哺乳類化石記載

Cervus elaphus LINNAEUS

出土品。左角ノ破片 (中央學校所藏)。

記載。角座ヨリ第三枝付ケ根マデノ破片ニシテ、長サ 950 mm 角座周圍 200 mm アリ。第一枝及第二枝ハ接近シ、第一枝ハ角座近クアリ。何レモ付ケ根欠損ス。尙余等ノ發掘品中ニモ鹿角アレド、小破片ニシテ種名判定シ難シ。

Cervus sp.

出土品。左角ノ破片 (中央學校所藏)。

記載。角座ヨリ 430 mm ノ長サヲ有スル破片ニシテ、第一枝角座近クヨリ派出スレド、付ケ根ヨリ破損セリ。角座周圍 130 mm。

Equus sp.

第 5 圖版 9. 10.

出土品。下顎左 P₄ 蹄骨一箇。

記載。下顎左 P₄

齒冠高ク齒根ヲ具備シ、完全ナル標本ナリ。咀嚼面ノ褶襞鋭ク内側縁ノ突出スル度著シ。珞瑯質モ厚キ方ナリ。

左第一指骨 短太ニシテ、黑色ヲ帶ブ。

最大長	80.5 mm	上端最大幅	56 mm
下端最大幅	47 mm	中央最小幅	35 mm

Rhinoceros sp.

第 6 圖版 4. 6. 7.

出土品。下顎左第一臼齒一箇、下顎右第二臼齒一箇、下顎左第四前臼齒。

記載。下顎左第一臼齒。

齒根モ具備セル完全ナル標本ナリ。ソノ形 W 字形ヲナシ、瑛瑯質壁厚シ。齒質凹ミテ瑛瑯質ヨリ低シ。齒根ハ前後二基ヅツ合シテ前後ノ二根トナレリ。

下顎右第二臼齒。

齒根モ完備セル完全ナル標本ナリ。磨削著シク進マズ W 字形ヲナス。齒根長大ナリ。

下顎左第四前臼齒。

咀嚼面ノ磨削著シク進メル良好ノ標本ナリ。ソノ褶襞 W 字形ヲ呈ス。

Elephas primigenius BLUM.

第 6 圖版 8.

出土品。象牙破片(中央學校所藏)、左肩胛骨(間島總領事館所藏)、乳臼齒(中村靜雄氏寄贈)。

記 載。象牙破片。

長サ 635 mm ノ破片ナリ。

左肩胛骨。

完全ナル標本ニシテ、長 490 mm 幅 115 mm アリ。

下顎左第三乳臼齒。

後方ヲ缺損セル標本ニシテ八稜アレド、完全ナル時ハ十稜以上ナリシナラム。長サ 72 mm, 最大幅 44 mm, 高さ 69 mm ナリ。稜ハ何レモ少シモ磨削セズ。各稜間バ未ダ「セメント」ヲ填充セズ。周圍ノミ「セメント」ニテ取り圍マル。

圖 版 說 明

第五圖版 9 10 *Equus* sp. (3/5 自然大)

第六圖版 4 6 7 *Rhinoceros* sp. (3/5 自然大)

8 *Elephas primigenius* BLUM. (2/3 自然大)

REPORT OF DIGGINGS AT TAMALU-KOU, PROVINCE CHIEN-TAO, MANCHOUKUO. (Résumé)

By

S. TOKUNAGA AND T. MORI

In close continuation to our investigation at Dokantin, above mentioned, for four days from the 3rd till the 6th of August, 1935, authors engaged in digging down to a Pleistocene strata in valley Tamalu-kou, 10 miles north-west of Lungchingtsun of Province Chentao; but on this occasion, they could unearth nothing but the following mammalian fossils found lying under fossilised trunks of *Larix* sp.

Artiodactyla: — Cervidae

Cervus elaphus L.

Fragment of left antler.

Cervus sp.

Fragment of left antler.

Perissodactyla; — Equidae

Equus sp.

Left P₄; 1st phalanx. (Pl. V. figs. 9 and 10)

Rhinocerotidae

Rhinoceros sp.

Left P₄, M₁, M₂. (Pl. VI. figs. 4, 6 and 7)

Proboscidea: — Elephantidae

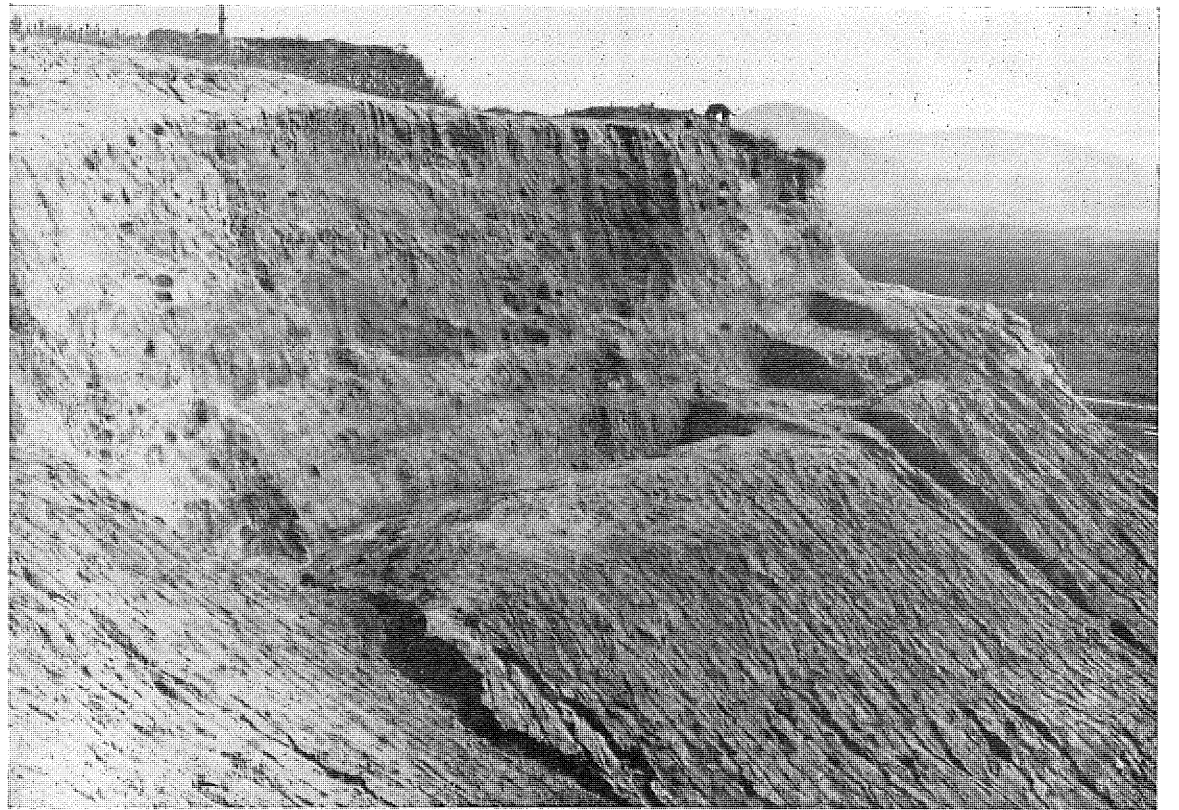
Elephas primigenius BLUMENBACH Left D₃ (Pl. VI. fig. 8)

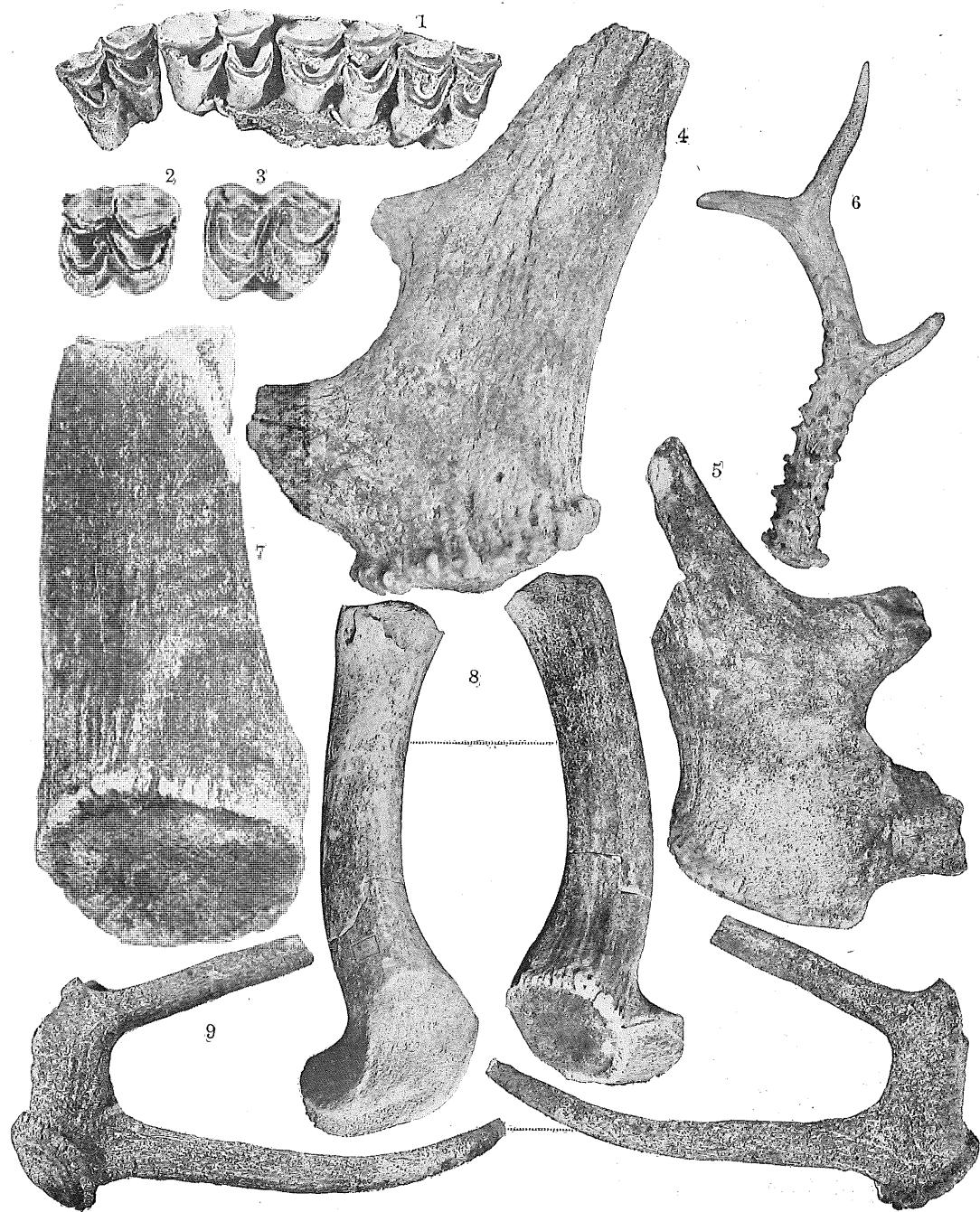
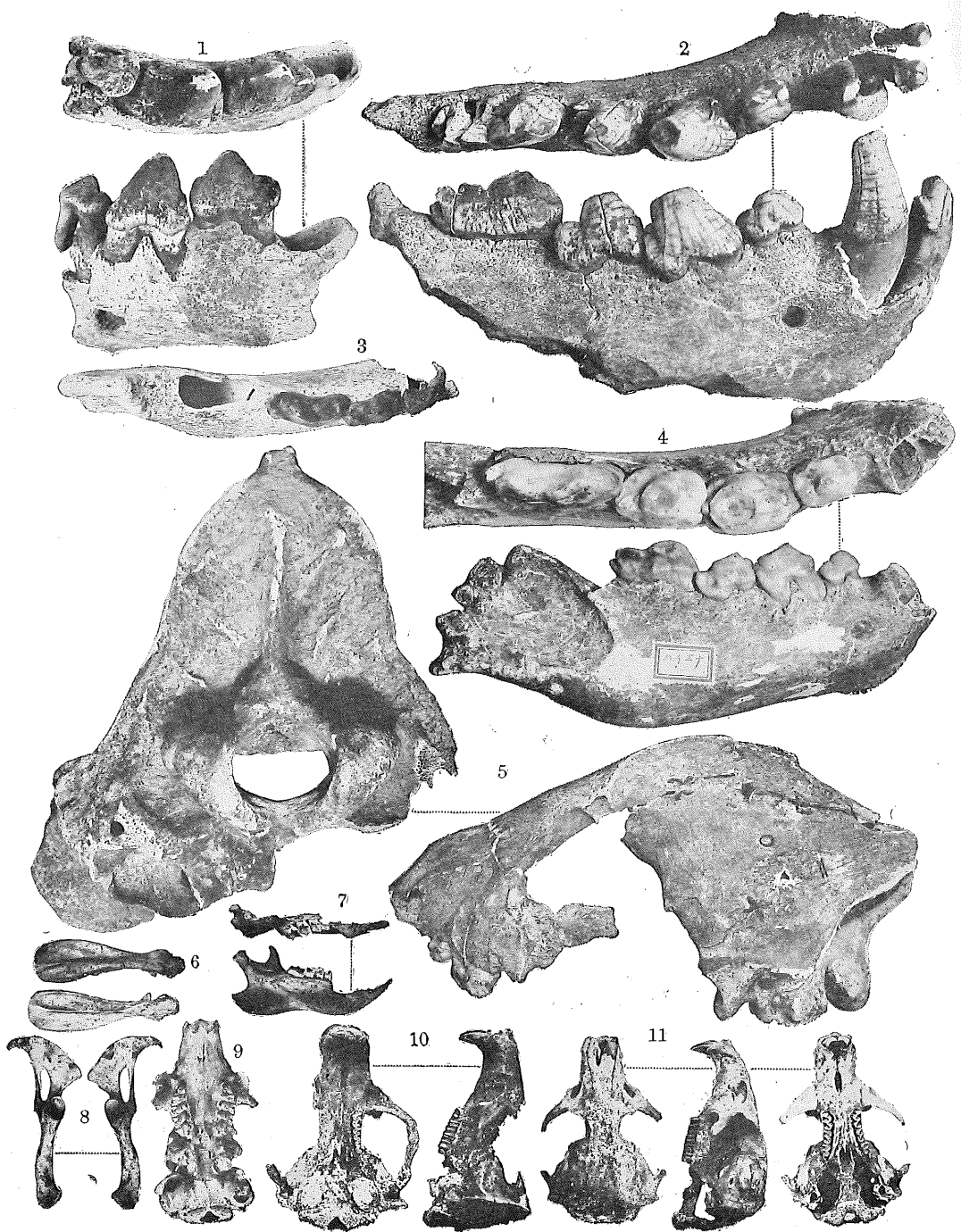
Explanation of Plates.

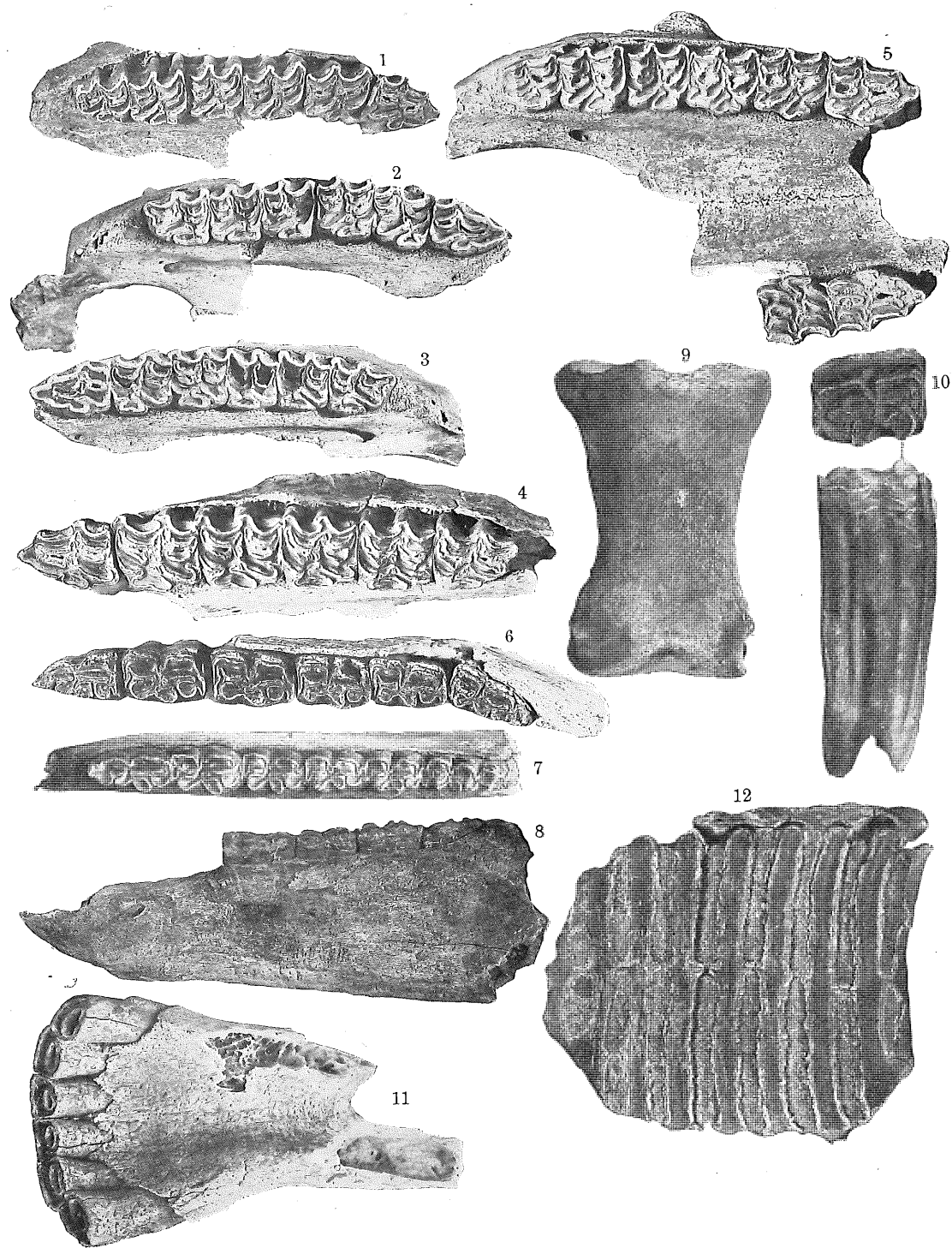
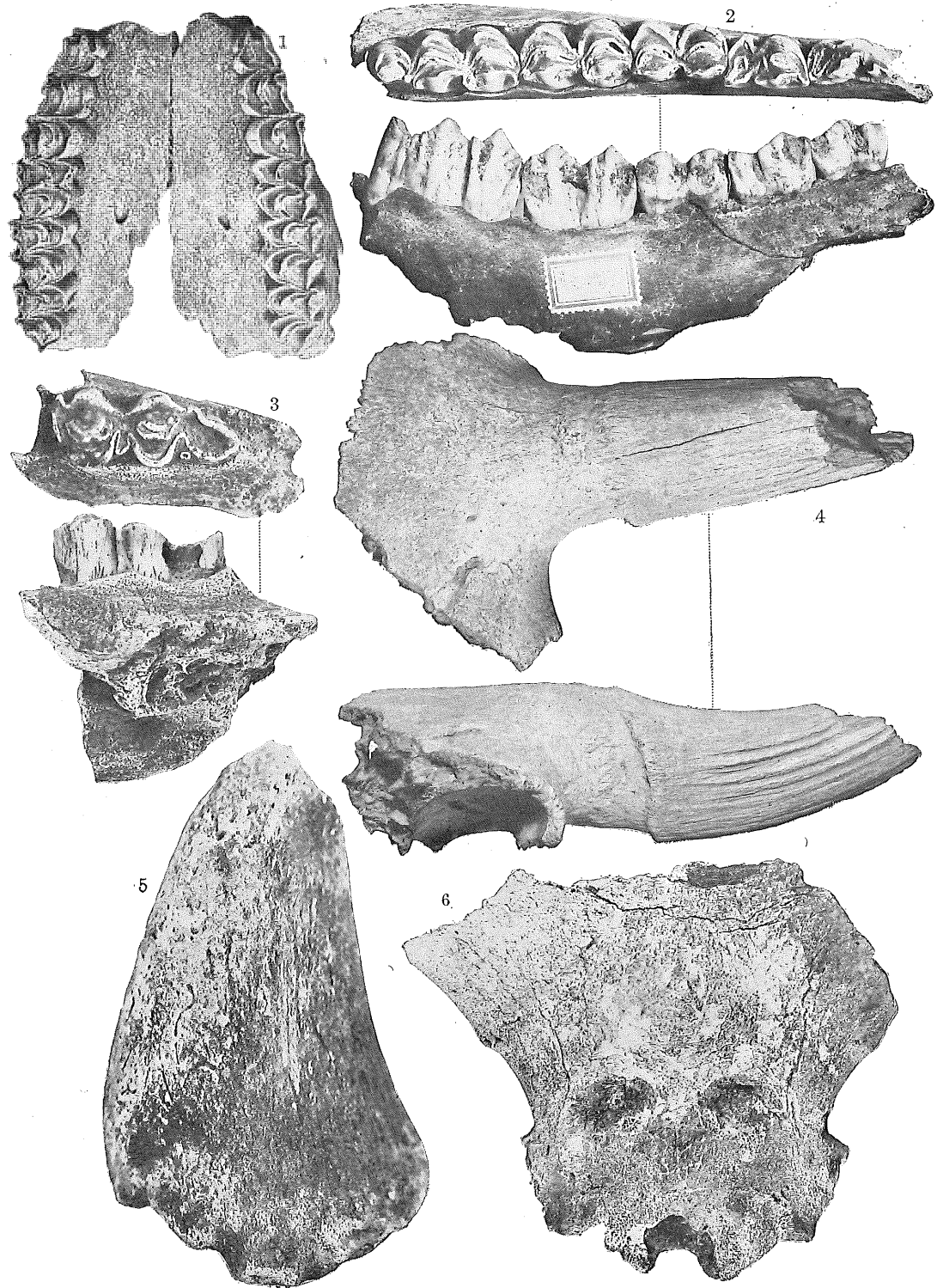
Pl. V. 9 10 *Equus* sp. (3/5 nat. size)

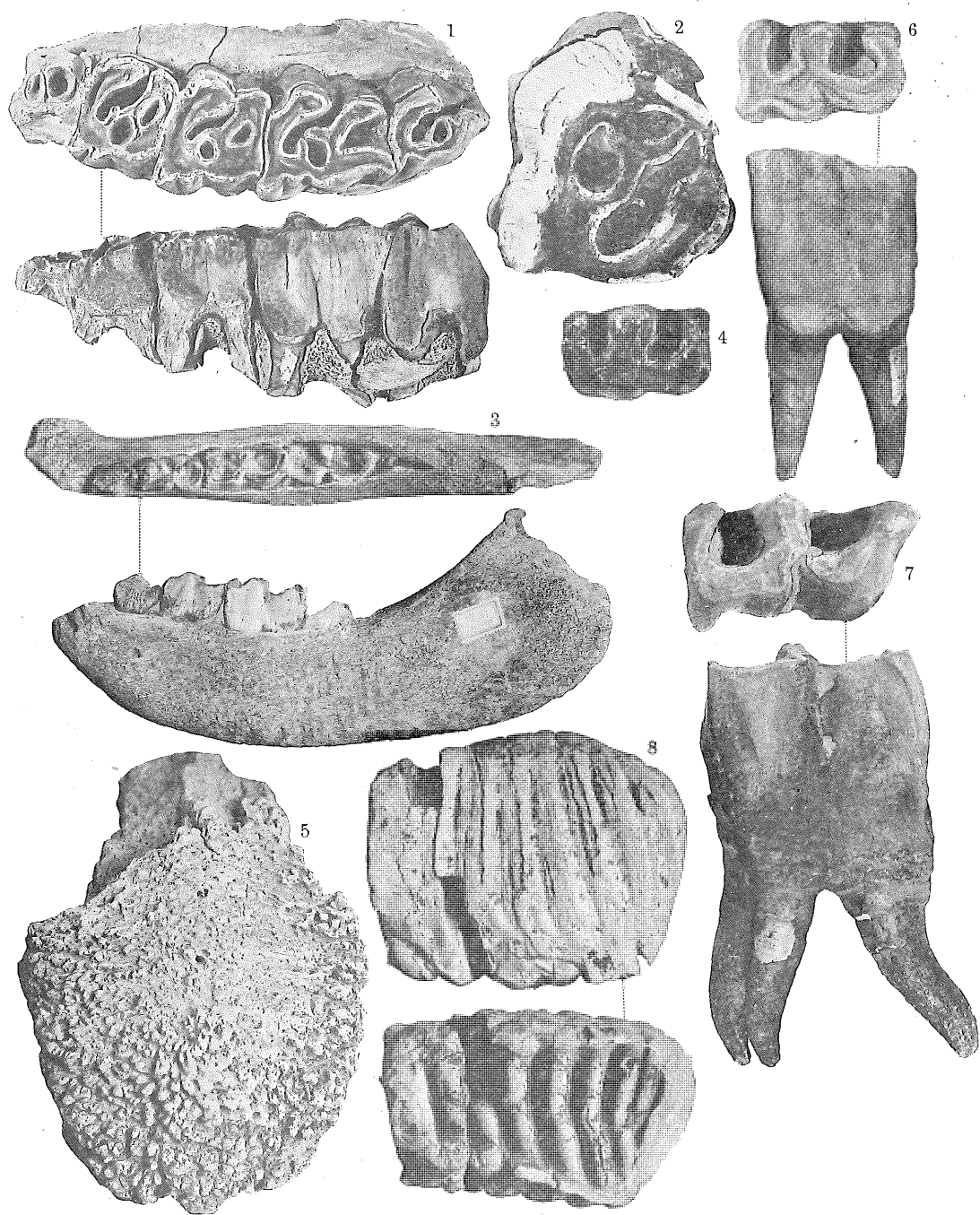
Pl. VI. 4 6 7 *Rhinoceros* sp. (3/5 nat. size)

8 *Elephas primigenius* BLUM. (2/3 nat size)









第一部	總	說	Section I.	General Report.
第二部	地	質	Section II.	Geology.
第三部	地	理	Section III.	Geography.
第四部	植	物	Section IV.	Botany.
第五部	動	物	Section V.	Zoology.
第六部	人	類	Section VI.	Anthropology.

昭和十四年十二月十五日 印刷

昭和十四年十二月二十日 發行

編輯者

東京市淀橋區早稻田大學內
第一次滿蒙學術調查研究團

代表者 德 永 重 康

印刷者

東京市下谷區二長町一番地
山 田 三 郎 太

寫真版者

東京市品川區大崎本町三丁目五八二番地
田 中 松 太 郎

凸版印刷株式會社印刷