中國古生物誌丙種第十二號

第一册

安陽殷墟之哺乳動物羣

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安陽殷墟，于中央研究院歷史語言研究所正式採掘之前，卽已見稱于世。一部分動物骨骸，曾落于日人之手，研究報告發表于民國四年（一九一五）。又有一部分，淪落于英倫博物院，其記述發表于民國十四年。此外尙有不少材料，留于上海博物院，其報告見于民國二十二年（參看參考書目十四及二十一等）。以上所列，僅爲見于報告者，至其他散失各處不能作爲研究資料者，更無法可以統計矣。

自中央研究院歷史語言研究所在該地作大規模採掘以來，一切科學上材料，皆加意採集。關于哺乳動物骨骸一部分，蒙傅孟眞先生李濟之先生送交地質調查所新生代研究室整理。又蒙地質調查所所長翁詠霓先生，允余以一部分時間從事于此，乃將各種標本加以脩理，別其門類，再進而考其性質，究其歷史。後因德日進先生對安陽動物羣亦感興趣，乃加入工作。原稿于二十一年冬，卽已竣事待印，後因安陽工作，仍在繼續，且有大批骨骸材料運平，乃又續理新來標本。材料增多而新加者究甚少，今幸全書告成，傅李翁諸先生信託贊助之力，至可感激。此外從事採掘諸先生如董作賓先生，梁思永先生，均對採掘情形時爲說明，裨益良多。並誌于此，以伸謝意。

由殷墟動物羣研究而最感興會者，爲由分析各動物習性之結果，知中國北方氣候，自有史以來之變化。但同時與南方文化之溝通，亦殊顯著。今先將各動物依次簡述，再殿以結論。至于詳盡敍述，及量度等，請參看英文，從略。

各種動物節要

肉食類

家犬　若干頭骨及下顎，由頭骨與下顎之各性質言，均與狼不同（頭小，項部凸起，切牙小等），而與現在生于中國北方之狗相同。至其確當爲殷墟之物，而非以後混入者。似無其他重要理由，可以否認。

狸　若干下顎，本類化石，可上溯至上新統。卽中國狸。但均比現存者爲大。陝北黃土中及周口店上洞中之狸，則與殷墟及現存者，幾不可區分矣。

熊　小而嘴短，計爲之代表者有一上顎（具二白牙）兩下顎。其大小與烏蘇里熊相若。另有一下顎，特大，或代表另一種熊。

獾　二下顎，與現存者甚近。

虎　若干頭骨，有一保存完全，具兩下顎，卽本篇可根據以敍述者。最早之虎，見于周口店。在歷史時期，中國虎之分布甚廣，現則僅限于福建新疆吉林等省而已。各虎之不同，不能于骨格上證明之。

豹　兩上顎，一下顎，係一個體。此外另有一上顎。體小。

鯨魚類　若干大脊椎骨及四肢骨。但均保存破碎，不能詳爲鑑定。但鯨類遺骨之見于殷墟中，乃確切證明安陽動物羣之複雜性。有一部，係人工搬運而來也。

齧齒類

黑鼠　黑鼠之頭骨二，此類鼠自周口店時已有。

竹鼠　若干下顎。比南方各地現存之中國竹鼠爲大，而與萬縣發見之化石竹鼠相似。竹鼠化

石之歷史，吾人可上溯以至上新統下期。但在安陽發現竹鼠，確甚奇特，因此等鼠只生在南方多森林之地，而以人工搬運說明，又不可通也。

兎　骨骸甚多，可證明爲當時極普通之物。其一切性質，與現生存之兎，無何區分。兎類化石，自上新統卽有，但因材料不豐，其骨格上性質又不顯著，故其歷史向不甚清晰。

有蹄類

貘　安陽化石羣比竹鼠更有興會而奇特者，爲貘化石之存在。計有兩下顎，一左爲幼年者，一右爲老年者，其牙之構造與現生存之貘相同，比馬來貘大小相若，而比萬縣化石羣中巨貘爲小，貘類化石甚少，全見于中國南方。爲說明貘類化石之存在于安陽起見，吾人有二假定。一卽認貘當安陽殷墟時期尙存在，因被當時人獵得。一卽當時人與南方各地已有交通，此等動物係由南方搬移而來。兩者比較似以後說較爲可信。因凡在中國北方其他堆積中，從未見有貘之存在。而以下述之安陽之象，亦可爲一佐證也。

馬　安陽之馬骨骸甚少，僅有若干牙齒，由其牙之性質，可知其確爲馬而非驢。

腫面猪（新變種）　安陽之猪，最爲普通，頭骨下顎均不少，且其性質甚顯著。其習性似已爲家畜，因牙齒甚小，頭骨奇特，幼小之標本甚多，均可爲此說之佐證。其生物系統，大約當歸Vittatus一類，故亦爲南部之動物。中國北部其他新石器時代之猪，則均爲北方猪（Sus scrofa）。

猪　除上述之猪外，尙有一成年下顎，其性質與上不同，或代表另一猪之存在。

獐　骨骸甚多，由其淚凹之存在，可知其確爲獐而非麝鹿。其化石最早者見于周口店堆積中，但已與現生存者無何區分。三河縣泥煤堆積，察哈爾萬全縣堆積中均有。由此可知獐雖現在限

于長江流域，而以前確在北方分布甚廣也。

鹿　骨骸亦甚多，大半均爲人工所切鋸，但由較完全之標本可知其當歸普通之梅花鹿，此類化石，自上新統中期以後各期均有。

梅氏四不像鹿　此類化石，在殷墟中所見爲最多。大部分皆係角，且多被割鋸者。四肢骨及下顎則甚少。頭骨無一較完整者。由其角之特異性質（第一角向後方伸出，各角尖端作羽狀分枝，且沿幹多節結。），可知此鹿雖與達氏四不像有若干相同之點，但却爲一特別之種。前人誤以之歸于他屬，蓋未悉其角之實在構造也。然其角之構造，過于特別而不自然，使吾人相信此一新種之鹿，或非在自然演化中而成，乃由人工培養而成者。至四不像鹿之歷史，吾人所知尚甚少，其確切無疑義之化石，除安陽外，至今未曾在他處發見。

殷羊　一種家羊，在殷墟中比較甚普通，計若干頭骨及下顎等。其體小，其兩角向外伸，可與中國西北之羊相比，但亦有許多不同之點，故定爲新種。

山羊　僅有一頭骨，角中空，幾與眼作垂直，向外伸出甚微，左右約扁平。其確切種名不易鑑定，但大約亦爲一家畜之羊。

牛　破碎之頭骨及角，又有許多手足骨，均可歸此類。亦有許多上下牙，但不易與水牛者區分。角作圓椎狀而扭曲。頭骨一如牛，與轉角牛等大不相同（顏面骨移向後凹出，覆于後頂骨部上。）。其角雖與原牛相同，但其故吾人仍視爲不同，至其究爲野牛或家牛，乃一不易解答之問題也。

聖水牛　殷墟中此類水牛亦不少，有若干較完整之頭骨及許多破碎者。手骨足骨亦甚多。其

角之性質最爲特別，短而粗，其三角橫切面。但頭甚大，與更新統水牛大小相若。頭後部甚凸出。介于兩角間之顏面部低下，介于兩眼間之部，尤凹下。眼珠亦大，手骨脚骨亦短而寬，概括言之，當與更新統及黃土期之水牛，同爲一組。但其角及頭之性質，又與之極易區分，若與現存者相比，則似與斐列濱之野水牛相似，故斐列濱水牛可視爲德氏水牛王氏水牛及挈水牛之唯一後裔也。

印度象　象化石之見于殷墟者不多，僅有破碎頭骨及若干四肢骨。茲可用以研究者，爲一不完全之下白牙，前人初視作猛獁者，蓋皆以爲採自更新統堆積之故。殷墟之有象，又引起二說。一謂象原生存于中國北方，一爲來自南方。由各方推斷，似後說較前說爲可信。

猴　一上顎，一下顎，與直隸猴無何不同之點。

結論

一，動物羣之成分

安陽考古地點之化石羣，世人習知已久。其骨骸之散失各處者，殆不可以數計。最初作一科學研究之人，乃爲日本松本彥七郎，其材料係由北京送去者。

松本氏當初視此化石羣，爲更新統之物。所記述者計有一新種之馬，猪，鹿，達氏四不像，原牛，轉角牛(新種)，猛獁及人之坐骨一具。由歷史語言研究所所採集之材料，並由其眞確時代之幫助，吾人對殷墟動物羣之知識，乃較前更臻完善。計本篇所述動物如下：

家犬　*Canis familiaris* L.

貉　*Canis (Nyctereutes) procyonides* Gray

熊 種一 *Ursus* sp.

烏蘇里熊 *Ursus* cf. *japonicus* F.

貛 *Meles leucurus* Hodg.

虎 *Felis tigris* L.

豹 *Felis pardus* L.

鯨 *Cetacea* indet.

黑鼠 *Epimys rattus* L.

竹鼠 *Rhizomys* cf. *troglodytes* Matth. and Gr.

兎 *Lepus* sp.

貘 *Tapirus indicus* Cuvier

馬 *Equus caballus* (*leptostylus*? Mats.)

腫面猪 *Sus vittatus* var. *frontalis* var. nov. 新變種

猪 *Sus* cf. *scrofa* L.

獐 *Hydropotes inermis* Sw.

鹿 *Pseudaxis hortulorum* Sw.

梅氏四不像鹿 *Elaphurus menziesianus* Sow.

殷羊 *Ovis shangi* sp. nov. 新種

山羊 *Capra* sp.

牛 *Bos exiguus* Mats.

聖水牛 *Bubalus mephistopheles* Hopw.

印象 *Elephas indicus* L.

直隸猴 *Macacus tchihliensis* M. Edw.

在此表中，松本氏之更新統種類，均付缺如，其複雜之性質，並與其他方面之研究參證，吾人乃可知其眞實之概念矣。

二，安陽動物羣之分析

最顯著之事實，爲殷墟人民爲一從事工業商業及耕種之民族。骨之大部分均係作骨器用，此外亦喜打獵，因而收藏各種不同之動物。此等事實，可說明何以其化石如此之多而繁雜。概括言之，殷墟動物羣可別分爲三組。一爲野而土著之動物，一爲家畜局部之動物，一爲自外搬遷而來之動物。三組中有兩組，內有若干爲滅亡或他徙之種類。

A. 野而土著之動物。可視爲歸于此組者爲貍，熊，獾，虎，豹，黑鼠，竹鼠，兎，獐，鹿，等。

貍虎鹿之絕跡，乃由人力摧殘之故，至竹鼠(如眞未滅種)及獐之南遷，乃一有興趣之事實，但因吾人對兩動物之生態不甚了了，故此等遷徙，究于氣候變化上有幾何影響，或係由于耕種關係之故，殊不易判定也。

B. 家畜。犬，猪，羊均可歸此組。此外四不像鹿，牛，聖水牛，及猴，或亦可歸此組。猪係南方種，四不像當爲一變易之種，因用其角而被豢養。牛亦家畜者。關于水牛，吾人視

爲更新統水牛中之殘存者。但若以爲自遷搬而來者，亦未始不可通。但無論如何，三者現均滅亡。水牛之絕跡，表示氣候上究有若干變化也。

C.自外搬運而來者。鯨象貘等，鯨類骨在海濱可以採得，象與貘則似係將活動物遷移來者。當時與南方之交通，似已甚繁盛。安陽多量之巨介(現在生于長江流域)亦可爲之佐證也。

三，中國黃土期後動物羣之研究

由上所述安陽化石羣之繁雜性，吾人可立知更新統與全新統化石羣分界之重要與困難。若一堆積尙含有虎，牛，巨齒象，或猛獁，土狼，巨角鹿，則人尙可視爲仍爲更新統。至鴕鳥蛋之存在，則比較不甚可靠。因此等蛋及(化石)新石器時人多用之也。至于水牛則吾人尙視爲唯一殘存至于原史時期者。

事實上一更新統性質之化石，見于一堆積中，其視爲殘存者，實甚可能。此在其他時期常有例證。如泥河灣時期有三趾馬，中非洲之有三趾馬及兇猛獸，北美之有始祖象等。卽退一步言，該動物確已滅種，吾人更須判別其所以滅亡之故。究由自然環境，或由人工，僅自然環境之原因，具有地質上價值，而人工者則否。

故解決此問題之重要基礎，須對無文化遺跡之更新統後期堆積，作詳細之研究。地層上地文上均須確切無疑。如此更新統，與有史期之界限，始可明瞭。此等堆積，用地質眼光看，仍視作無人之地。故以後之研究，當特別注重次生黃土，泥煤層，及近代洞穴堆積等。

On the Mammalian Remains from the Archæological Site of Anyang*

By P. Teilhard de Chardin and C. C. Young

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INTRODUCTION

Close to the modern city of Changteho (N. Honan) are buried under the mud of the Chinese maritime plain the remains of Anyang, the latter city being the old capital of the Shang dynasty (Circa 1400 B. C.-1100 B. C.).

For years the locality, although well known for the numerous archæological remains occasionally unearthed by the local ploughmen, was left untouched by scientific excavation.

But since 1928, systematic excavations on a large scale have been undertaken on the site by Professor C. Li of the Institute of History and Philology, Academia Sinica, assisted by Messrs. T. P. Tung and S. Y. Liang. As an accessory result of this undertaking has been the recovery of a large series of animal bones preserved in the cultural strata.

Through the kindness of Professor C. Li this rich material has been submitted for careful study to the Cenozoic Research Laboratory of the Geological Survey of China, the results of which are presented in this Memoir.

As defined more clearly below, the interest in the sub-fossil fauna of Anyang is two-fold. First, from the analysis of the zoological remains, conclusions can be reached concerning the alterations undergone by the North Chinese climate and environment in the course of historical times. In addition, a few positive indications are evident, suggesting the fact that

*This memoir was prepared originally as a part of the report of the excavations at Anyang, to be published in the Archæologia Sinica series edited by the Institute of History and Philology, Academia Sinica. Owing to its importance to the students of Cenozoic fauna it has been arranged to have it first published in this series so that it may be more accessible to palæontologists. Editors.

regular cultural interchanges have taken place between the old city and some remote southern countries.

To Professor S. N. Fu, Director of the Institute of History and Philology, Academia Sinica, to Professor C. Li and also to Dr. W. H. Wong, the Director of the Geological Survey of China, who have made possible the publication of this Memoir, we wish to express our warmest thanks.

DESCRIPTION OF SPECIES

Order **CARNIVORA** Vicq d'Azyr

Family **CANIDÆ** Fischer

Genus **CANIS**

Canis familiaris L.

A banal type of domesticated dog is represented in our collection by a well preserved skull, two broken skulls, and some 40 lower jaws.

SKULL. Size rather small. Muzzle not elongated. Brain case relatively large and rounded, with high sagittal crista and strongly overhanging occipital crista. The frontal area is strongly convex, but marked along the frontal suture by a deep valley. Ante-orbital area depressed.

Upper carnassial tooth small, its length not exceeding the length of the two molars taken as a whole.

Maximum length of the skull	166 mm
Maximum breadth of the brain case	54 mm
Length I-M^3.....83 mm; length P^1-M^3	56 mm
Length of P^4... 18 mm; of M^1-M^2	18 mm

The same characters (size and shape) are recognizable on the second, fragmentary skull.

LOWER JAW. Carnassial relatively small. Lower margin of the horizontal ramus decidedly convex. Most of the specimens are a little too large to fit the above described skull.

Average length (maximum) of the jaw	125 mm
Length I-M_3.... 80 mm; length P_1-M_3	67 mm

COMPARISONS. By all the characters of the skull and jaws (skull of small size, constricted, frontal convex, carnassial teeth small, etc.) the Anyang dog differs from a wolf, and stands very close to the common type of dog actually living in China. There is no positive reason however to assume that our specimens belong to modern animals which became accidentally buried in the archaeological deposits.

Canis (Nyctereutes) procyonides Gray

In addition to the domesticated dog, another Canid of a much more characteristic appearance is represented in our series by three lower jaws.

Judging by their small size, by the microdonty and the thickness of their teeth, and especially by the presence of a sub-angular lobe and by the peculiar shape of the angular process, these remains are immediately referable to the Racoon-dog (*Canis* or *Nyctereutes procyonides*), a species still living in wild conditions in Manchuria, Korea, Japan, and in several other places all over Central and Southern China.

Total length of the jaw (from the incisive border to the angular process).	85 mm
Length P_1-M_3	43 mm
Length of the three molars	21 mm

The history of *Nyctereutes* can be traced back in China as far as the early Pliocene. The Pliocene *Canis* (*N.*) *sinensis* Schlosser does not differ but by a larger size from the living Racoon-dog. In the Lower Pleistocene of Choukoutien (cf. Pei, 1934) the size is still large. Later it decreases distinctly. The Late Pleistocene *Nyctereutes* of N. Shensi (Sjara-osso-gol sands) and Choukoutien (Upper Cave) already is undistinguishable from the modern *Nyctereutes procyonides*.

Family **URSIDÆ** Fischer

Ursus (Selenarctos?) sp.

A small, short muzzled Bear is represented in our series by a fragmentary upper jaw, with M^1 and M^2, and two left lower jaws, one of them being complete but with only C and M_3 preserved, the other one broken after M_1 but with M_1, P_4 and C still in their socket. On

both the lower jaws there are three alveoli for P_3, P_2, and P_1, all the premolars being crowded (without any diastema) between the carnassial and the canine.

Dimensions of the teeth compared with an *Ursus* (*Selenarctos*) *ussuricus* Heudes from Manchuria:

	Ursus sp.	*Ursus ussuricus*
Length and breadth of M^1	19/14	19/14 mm
do M^2	28/16	30/16 mm
do C_1*	20/11	20/15 mm
do P_4	11/5	10/6 mm
do M_1	21/10	20/7 mm
do M_3	13/9	15/13 mm
Height of C_1 (lower canine)	25 mm	

These dimensions (except in the case of M_3) would approximately fit for *Ursus* (*Selenarctos*) *ussuricus* (or *japonicus* Schlegel), a form hardly distinguishable from *U. angustidens* Zd. (Lower Pleistocene of Choukoutien, Zdansky 1928, Pei 1934), and *U. kokeni* Matth. and Gr. (Pleistocene of the Szechuan, Matthew and Granger, 1923). But the last lower molar and the lower jaw are decidedly smaller than in the two specimens of *U. ussuricus* we could use for comparison:

	Ursus sp.	*U. ussuricus*
Maximum length of the lower jaw (from the incisive border to the condyle)	162	195 mm
Height between M_1 and M_2	32	37 mm

In addition, on *U. ussuricus* the three first premolars are widely spaced, not crowded between P_4 and the canine.

We do not have sufficient material on hand for comparison in order to decide between the three following possibilities:

(a) The small Anyang Bear is a small variety of black Bear indigenous in China.

* Dimensions were taken at the base of the crown.

(b) The Anyang Bear is an ordinary Chinese black Bear, somewhat changed by captivity.

(c) The Anyang Bear represents a foreign type of *Ursus*, imported from the South.

?Ursus (Selenarctos) ussuricus Heudes

A complete lower jaw without teeth. The size is much larger than in the precedent form, but smaller than in the Chinese brown Bear.

Maximum length of the mandibula..... 220 mm
Height between M_1 and M_2..... 41 mm

Family **MUSTELIDÆ** Swainson

Meles leucurus Hodgson

Two lower jaws, perfectly similar to those of the common Badger living in North China

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Family **FELIDÆ** Fischer

Genus **FELIS** L.

Felis tigris L.

Pl. I, figs. 1-2; Pl. III, figs. 1-2; text-figs. 1-2.

A number of Tiger skulls have been recovered by Dr. C. Li. But the specimens here described consist only of a well preserved skull (with the lower jaw in connection), of a few isolated lower jaws, and several metapodials.

The skull is complete and entirely tiger-like. For instance, the posterior margin of the nasal bones extends backward beyond the posterior end of the maxillary—an assumed distinctive characteristic of *F. tigris*.

The lower jaw also is typically tiger-like, especially because of the straight linear out line of its lower margin.

The teeth are exactly as in the modern tiger.