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VERTEBRATA PALASIATICA

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第三個"巨猿"下顎骨的發現

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在本學報1卷2期，筆者曾就我們在廣西僮族自治區柳城縣硝岩洞里發現兩個"巨猿"下顎骨的事實作過報導[1]。1957年到1958年期內，柳城硝岩洞（通稱"巨猿洞"）的發掘工作在李有恆、柴鳳岐、喬琪等負責下又發現了第三個下顎骨和許多哺乳動物化石。這對"巨猿"的體質形態以及對其地質年代的研究爲我們提供了新的材料。現巨猿洞的發掘工作仍在進行，本文僅爲1957—1958年發掘的初步報告，並在此提出一些新材料。

一. 發掘的部位和地層

巨猿第三下顎骨發現的洞，是巨猿洞主洞的一個旁支。從圖1可以看到，主洞同支洞由E

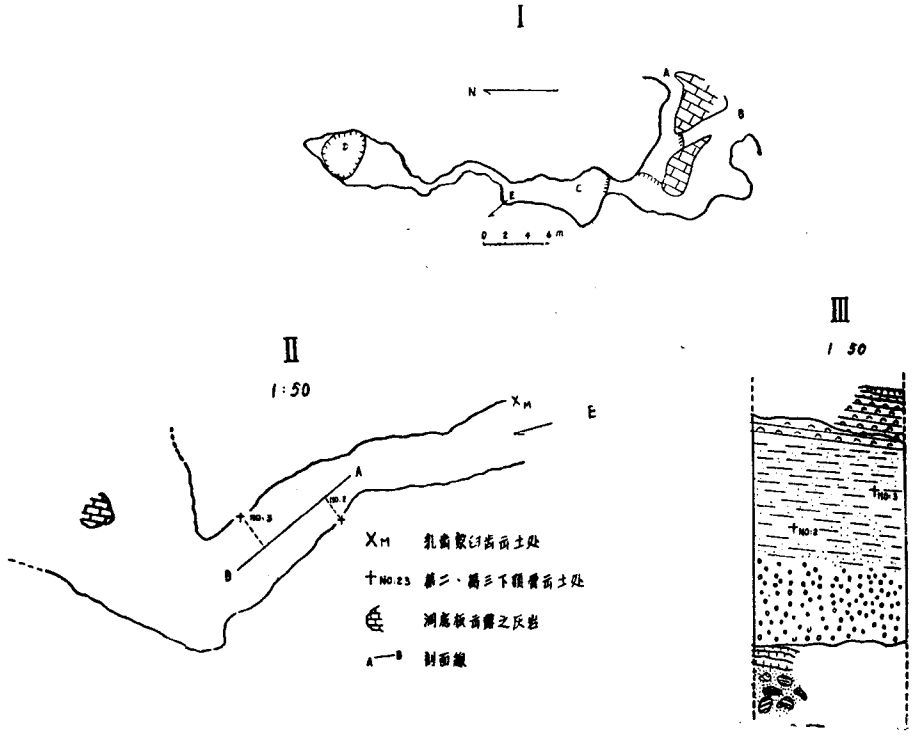

圖1 廣西柳城楞塞山硝岩洞

1) 裴文中，1957：在廣西省中部柳城縣"巨猿"下顎骨之發現。古脊椎動物學報，1卷2期。

處連結起來。這個支洞已於1956—1957年第一次發現時發掘了一部份堆積，並發現了第二下顎骨和一個乳齒象的牙齒。1957—1958年發掘開始之時，仍繼續在這個支洞中進行發掘工作，並且又在同層里比較稍高的地方發現了第三個下顎骨。

根據有恆的分析，這個洞內堆積可分下列四層(圖1之II,III)：

(1) 鬆散的棕褐色土狀堆積　這層堆積亦即第一次報告中的"紫紅色砂粒及粘土"。這一層的局部變化很大，有些部分砂粒少。有的部分，粘土多成塊狀，尚未膠結，中多空隙。顏色亦較深，多爲暗褐色，因其中含腐植質較多，且有樹籽空殼及植物莖葉痕跡，惟尚未詳加研究。這一層的厚度不詳，因底部尚未掘完。在這一層堆積中，亦有化石發現，如劍齒象的碎片及肢骨斷片等，它們大部已成黑色。這一層的上邊，覆蓋着石鐘乳硬殼，約厚0.3米。

(2) 化石富集的黃土堆積層　這一層的上限與(3)層界限不很清楚，係逐漸過渡的。這層主要是微紅色黃土，中含砂粒和碳酸鈣結晶微粒(方解石)很多，異常堅硬，下部沒有石灰岩碎塊。在這一層中發現了許多巨猿的零碎牙齒，此外還有其他動物的零星牙齒和體骨。巨猿第二下顎，就是在這裏發現的。這一層的總厚約爲1米。

(3) 含碎土塊的黃色堆積　這一層是由(2)層逐漸過渡而來的，中間沒有明顯界限。這一層中主要亦爲由碳酸鈣結晶微粒所膠結的黃色土，惟中間含有黃色小土塊和石灰岩小塊，膠結比較鬆軟一些。全層厚約1.5米。在此層中曾發現一個巨猿的第三下顎骨。此外還發現有其他動物的化石，多爲牙齒，惟數量不多。

(4) 頂部石鐘乳硬殼　(3)層之上爲另一層堅硬的石鐘乳殼，因下邊的堆積較鬆散而不存在，故此層一部份如硬板狀突出。全層厚約0.75米。此層上部爲比較純的碳酸鈣結晶微粒，下部爲黃色的、經碳酸鈣膠結的硬層。

從這一部分堆積來看，其堆積的情況大致如下：

這個巨猿洞生成之後，首先堆積了一層紅土，在乾燥的時期，紅土又乾裂成塊(可能下邊還有一層石鐘乳殼)，在一定時間內，洞外的植物(如樹籽等)被水冲入，並同時冲入了砂粒。植物腐爛後使紅土變成黑色及棕褐色。是爲上述的(1)層。

在這以後水的作用就躍居顯著地位，紅土堆積作用暫告終止。石鐘乳硬殼就是由於水的作用形成的。

此後在這個洞中，又發生了黃色土狀堆積，但這層堆積形成之初，水的作用還相當顯著，它把黃色堆積膠結得相當堅硬。巨猿和其他動物可能曾在這個洞內居住過，它們死後，遺骸就埋藏在這些堆積之中。

其後水的作用逐漸減弱，在洞中居住的動物也相應增多(有些動物可能是別的動物携入洞中的)。由於黃色土堆積作用較顯著，土狀堆積乾燥後即乾裂成碎塊。是爲第(3)層。

最後(當然只是指這個支洞的堆積時間)水的作用又顯著了，並形成了頂蓋上的石鐘乳殼。

如果上述情況距離事實不太遠的話，那末就可以得知，在這個支洞堆積生成的時候，氣候曾發生了多次的變化，至少是有兩次土狀堆積和兩次多水(雨)的時期。

洞內的紅色土堆積，可能是乾而熱的氣候的產物；黃色土堆積可能是濕而溫和的氣候的產物。

二．新發現的化石種類

因發掘時所採的化石，多埋藏在堅硬的角礫岩中，故此非經長期修理，難以認識其種類。1957—1958年發掘出來的化石，現在已大致修理完竣。因此對於巨猿洞內的化石事，已可窺見全貌，其年代亦可確定。除1957年初所報導的化石以外，計有下列各新發現的種類：

食　肉　類

小熊 [*Ursus* sp. (sp. nov.)]　代表這一屬的共有一完整的老年頭骨，一個幼年頭骨的前半和一些零星牙齒。牙齒比 *Euactos kokeni* 稍小，而頭骨則更小，特殊之處是頭骨後部特別寬。

大熊貓小種 [*Ailuropoda* sp. (sp. nov.)]　代表這一屬的只有相連的完整的、牙齒俱全的下顎骨和一些零星牙齒。下顎和牙齒的尺寸特別小，但構造與大熊貓無大區別。

其尺寸大小，可用下列數字表示之：

	廣西柳城巨猿洞 *Ailuropoda* sp. (sp. nov.)	四川萬縣鹽井溝化石大熊貓 *Ailuropoda melanoleuca fovealis*	廣西柳江大熊貓化石	現代大熊貓 *Ailuropoda melanoleuca*
P_3—M_3	84.2	123.5—128.7	116	102.3—112.8
M_1—M_3	54.8	80.0— 86.3	80.4	67.7— 78.8

桑氏鬣狗 (*Hyaena licenti*)　代表這一屬的只幾個零星牙齒，但有 M_1 一個。牙齒比中國鬣狗小一些，在後邊的跟座上，有三個小尖，與中國鬣狗只有一個小尖者不同。桑氏鬣狗爲華北下三門系(泥河灣期)的化石。

奇　蹄　類

貘 (*Tapirus* sp.)　在上一篇論文中曾指出所發現的貘化石，其尺寸與四川萬縣之巨貘 (*Megatapirus*) 不同。此次發掘所發現仍然很小，尺寸也很固定。

爪獸 (*Chalicotheridae* indet.)　代表這一屬的只有幾個不完整的牙齒，擬待今後再作詳細的研究。

偶　蹄　類

猪科 (Suidae)　在所發現的化石中除在江南常見之猪化石外，尚有一種很大的猪類，它很像華北三趾馬紅土中的 *Chleuastochaerus*，此外還有一種非常小的猪類，是從前所不知的種(或屬)。

鹿類 (Cervidae)　代表這一類的只有一個完整的鹿角，角上有三個杈，尺寸很小。此外還有一個很小的麂鹿類 (?*Muntiacus*)。

羊類　在所發現的屬於羊類的化石中只有幾個零星牙齒代表一種或兩種巨大的羊類。

長　鼻　類

乳齒象 (*Mastodon* sp.)　在新發現的屬於乳齒象的化石中有一些牙碎片及一個下乳齒。

從上述新發現的哺乳動物化石看來，其中有很多古老的種，有相當於華北泥河灣期的，也有類似於蓬蒂紀，即上新世初期的。由此可見與此巨猿同時生存的動物羣似乎不屬於更新世中期，而應是更新世初期，相當於華北的泥河灣期。

現在的問題是如何將江南山洞內的動物羣，如華北一樣，分爲更新世初、中、晚三期。巨猿洞的位置高出現地面 90 米，再加其中化石多爲古老的種類，因此它們屬於更新世初期的動物羣的可能性很大。如此，則對江南山洞中的劍齒象、大熊貓動物羣，過去總以爲是一個動物

羣,其年代相同,這次的研究向前大大邁進了一步。今後的研究,當着重於如何將江南山洞中的動物羣加以區別以及如何區別其時代不同的特點。

據初步觀察,與巨猿同時存在的動物羣,多爲體形很小的種,這是一個很值得注意的現象。

三. 巨猿第三下顎的初步觀察

巨猿第三下顎的尺寸非常大,如表 1 所示。

同時這個下顎骨上的牙齒,都已磨蝕很深,左 M_2 外邊已磨成了深坑;右 M_2 脫落,除 M_3 外,其餘牙齒都磨掉了牙瓷,成了凹坑,露出了牙質。

這樣的情況和第一第二下顎骨比較,顯然是第三下顎骨屬於一個老年雄性個體。第二下顎骨屬於一個雄性幼年個體,第一下顎骨屬於一個雌性老年個體。

從表 1 所示三個標本看來,不同性別和年齡的巨猿,也和其他哺乳動物相同,它們牙齒差別並不大,而主要的差別是顎骨。

就三個個體來比較,從牙齒的排列(至少是從 P_3 到 M_2)觀察,第二下顎骨是直的,第一下顎骨稍微向外彎曲一些,第三下顎骨則介乎二者之間。我們是不是可以由此得出結論:在牙齒排列的弧線上,也有年齡和性別的區別,這一點尙有待將來作進一步的研究。

第三下顎骨前邊的底部很特別,就是 fossa digastrica 完全在顎骨前部的後邊,與大的類人猿相同,而不是像現代人那樣完全在顎骨前部的底面。

巨猿第三顎骨上的犬齒,並不比類人猿的犬齒大,但犬齒的磨蝕面完全在後側面,這說明上下犬齒是交錯的,而不是相對的,這也是猿的性質之一。

下犬齒和下第三前臼齒間的空隙不大。上犬齒對於下第三前臼齒的磨蝕作用不大,因爲在我們的標本上,左右下第三前臼齒的前面,都只在下部磨蝕了一些。

新發現的材料,仍然加强了我們認爲"巨猿"是屬於"猿"的范疇的動物。從三個標本比較來看,在身體大小方面,似乎和年齡及性別都有很大的關係。

四. 結 論

關於巨猿的材料,除三個下顎骨外,還有二百多個單獨的牙齒。另外,從巨猿洞中發掘出來的動物化石也很多。這些材料的研究,都需要一定的時間,現在只就我們新發現的材料,發表我們的一些初步的觀察。

首先值得注意的是關於巨猿的時代問題。由於在我們所發掘出來的新的共生化石中,有許多古老的種類,這樣就使我們不能不考慮過去認爲它是更新世中期的說法。它的年代應當是更新世初期,即相當於中國北部的下三門系或泥河灣期,相當於歐洲的維拉方期。

現在的問題是江南山洞中的動物羣在整個更新世中變化很少,大部分的種類都不能分別它們因時代不同而起的變化。今後我們應當加强洞內堆積和洞外堆積的綜合性研究,並對華南更新世動物羣進行詳細的研究,以便能將華南洞穴內的動物羣分得更詳細一些。例如,關於與長陽人共生的動物羣是否屬於更新世晚期的這一問題,也急待我們加以解決。

就已發現的巨猿材料來看,它們的尺寸雖有大小,性質亦微有不同,這可能是由於年齡和性別的關係。但是從它們的基本性質來看,他們是屬於同一種動物,不應當將它們分裂爲不同的種。這樣也同樣可以推到由"龍骨"或其他洞穴內所發現的巨猿材料。

至於巨猿的生活狀態以及其他有關問題,還有待於發掘完畢之後再作進一步的研究。

表1 巨猿、人類化石、現代人和猿的下顎及下齒尺寸比較表

	巨猿 (*Gigantopithecus*)			中國猿人 (*Sinanthropus*)		海德堡人 (*H. heidelbergensis*)	大猩猩 (*Gorilla*)	現代人 *Homo sapiens*
	第一下顎骨 (Mandible I) 老年雌性♀	第二下顎骨 (Mandible II) 幼年雄性♂	第三下顎骨 (Mandible III) 老年雄性♂	No.G.I♂ 成年男性	No.A I♀ 成年女性		No.331	No. C/C.280♂
下顎骨的高度 (height of Mandibular bone)								
在 I_1 中間 (between I_1)	66.1	71.3	101.5	40.6	32.4	36.6	60.7	34.0
在 P_4 之後 (behind P_4)	58.7	53.1	79.9	36.8	27.7	36.7	40.3	31.6
在 M_3 中間 (at middle of M_3)	—	—	76.3	34.0	24.0	35.1	37.0	27.3
下顎骨的厚度 (thickness of mandibular bone)								
在 I_1 中間 (between I_1)	36.6	39.1	47.0	16.9	14.5	18.0	29.0	17.2
在 P_4 之後 (behind P_4)	31.5	33.5	36.0	20.5	16.8	22.7	19.5	13.4
在 M_3 中間 (at middle of M_3)	38.6(?)	—	37.0	18.8	16.7	21.5	21.8	14.5
長度 (length)								
I_1-M_3	85.1	95.8	101.3	58.6	51.3**	67.4	85.0	50.0
P_3-M_3	65.4	74.5	73.8	43.1	34.2**	47.5	57.6	38.4
M_1-M_3	—	—	59.2	38.4	31.4**	38.0	50.2	34.4
長×寬 (length × breadth) M_3	20.0×16.2*		21.9×17.5	13.5×13.7	11.6×10.4	12.8×11.8	18.7×16.4	12.4×11.2

* 一個單個的 M_3，但很可能是第一下顎骨上的 M_3(An isolates M_3, but probably from the same individual as Mandible I.)。

** 由牙槽測量(by alveolae)。

DISCOVERY OF A THIRD MANDIBLE OF *GIGANTOPITHECUS* IN LIU-CHENG, KWANGSI, SOUTH CHINA

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(Summary)

A third mandible of *Gigantopithecus* (Mandible III) of enormous size was discovered in the continuous excavations in the season 1957—1958 in the same *Gigantopithecus* Cave in the Lêng-Chai-Shan Hill, southeast of Hsin-Shueh-Chung-Tsun, in Liu-cheng county, in Kwangsi Autonomous District of Chuang Minority, where the finding of two mandibles in the season 1956—1957 has been reported elsewhere by the senior author, (Pei, 1957). In addition to the new mandible of giant ape, many new forms of other fossil mammals, were also encountered in this cave. It seems, it is the time to make a reconsideration of the geological age of the cave deposits, and, while waiting for the detailed study of these fossils, a short report of our preliminary observation seems to be useful and necessary.

Regular excavation of our Institute in the Liu-cheng *Gigantopithecus* cave was resumed in November 1957 and work was continued in a side-cave, connected with the main cave at the place where E is marked on a published plan (fig. 1, I, in the Chinese text).

From the bottom to the top, four layers of the deposits can be recognized in this side-cave. Though the excavation is still going on and the actual bottom of the deposits not yet arrived, it seems, however, we reached the place very approaching the actual bottom of the side-cave.

The first layer (figs. 1, II & III) of the deposits consists of small blocks of red cave-loam and violet sands, which were slightly cemented, but tinged to blackish or dark brown colour by decayed organisms. Some empty shells of seeds of a certain tree and some leaves and stems of some grass can be still recognized but the study of them has not been made yet. Bone fragments are rare in this layer. This layer is covered by a hard stalagmitic crust.

Over laying on the hard crust, there is the 2nd. layer consisting of yellow breccia (figs. 1, II & III), very rich in fossils, both isolate teeth and bone fragments. The breccia composed of yellow sand and clay, strongly cemented by small crystals of calcite in its lower part.

The 1st. and 2nd. mandible (Mandible I & II) of *Gigantopithecus* were found in the upper part of this layer. A great quantity of isolate teeth of fossil mammals, including the giant ape, were encountered here. The total thickness of Layer 2 is about 1.5 m.

The yellow breccia of second layer is mingled into the 3rd. layer (figs. 1, II & III) which consists also of yellow breccia but only less consolidated and with more limestone

fragments and small blocks of yellow clay towards its upper part, but rare in fossil.

The 3rd. mandible is found in this layer, somewhat higher in position than the other 2 mandibles.

The top of Layer 3 is also covered by a hard layer of stalagmitic crust which is now hanging in the cave as a thick board, after the loose material below being removed.

By the study of the deposits in this side-cave, it seems that during the time of accumulation of the *Gigantopithecus* bearing sediments here, the climate had been changed several times. First the formation of red cave loam possibly was in a hot and dry climate. Afterwards, the clay cracked into blocks and foreign material introduced such as tree seeds and grass leaves. Finally water condition comes to the maximum so forming the stalagmitic crust of layer 1 and closing the first climatic cycle.

In the 2nd. phase, it began with the climate forming the yellow clay[1], possibly warm and humid. The mixed sands were washed in from outside of the cave. Animals lived in this cave and left their remains mixed in the deposits. Finally, another water season came and the top-most stalagmitic crust precipitated. Whether all the climatic changes took place in a single unit of geological time or in two units, it is a question which can not be solved at the present moment.

The 1957—1958 excavation in the *Gigantopithecus* cave in Kwangsi not only resulted a good harvest in the fossils of giant ape, but also in those of dwarf mammals.

Three forms of Suidae can be recognized: one is the ordinary *scrofa* type, another large form somewhat similar to *Chleuastrochaerus* of North China Pontian. A third dwarf Suidae whose lower dental series, P_4—M_3, is measured only 60.1 mm.

That the fossil Tapir from this cave is very small has been noticed by the senior author and we need not to repeat.

A dwarf form of giant panda is very striking in deed, no difference can be noticed in its dental character from that of other fossil panda from South China caves, but it is so small in size as shown in the table in the Chinese text on p. 195.

Fossil bear is found also to be a dwarf form. Its teeth are almost the same as the smaller type of *Euactos kokeni* but its skull is much smaller than that of *kokeni* from Yen-ching-kou of Szechuan and from Tung-shan-hsien of Hupei.

At least two more archaic forms of mammals were collected together with the mandibles of giant ape in this cave. First we should mention the isolated teeth of a form of Chalicotherid, a precise determination of which will be made at a later occasion. And secondarily we should emphâsize the fossil *Hyaena licenti* Pei, which is very characteristic for Lower Sanmenian or Nihowan formation of North China by the presence of three small cusps on talonid of M_1.

One milk lower tooth and some tooth fragments of *Mastodon* were also added in our collection.

For the presence of more archaic forms and some dwarf forms, that opinion that

1) Yellow cave clay might be also the material or partly washed in from outside of the cave.

the age of the mammalian fauna contemporary to the Gigantopithec was formerly regarded as middle Pleistocene should be now revised. Considering the known mammalian elements in the Liu-cheng Cave, a suggestion of Early Pleistocene, Lower Sanmenian (Nihowan) of North China, or Villanfranchian of Western Europe for the age of this fauna, as already thought by Dr. Mingchen M. Chow, is quite reasonable.

The third *Gigantopithecus* mandible of Liu-cheng (Mandible III) is really extraordinarily large in size, especially in the jaw bones. To show the gigantism of this ape, the table on p. 197 in the Chinese text is referred.

All the teeth on Mandible III (Pl. I & II) are greatly worn down. If we compare the two mandibles known previously, they might be regarded as old male individuals, Mandible I (Pl. III, 1) an old female and Mandible II (Pl. III, 2) a young male.

But we should observe the facts that, as shown by the said table, the diffence in size in teeth in different ages and sexes is not very great, as in all mammals, but the difference demonstrated by the jaw-bone is really remarkable.

The dental arch is straight in Mandible II, but slightly curved in Mandible I. And that of Mandible III is found somewhat lying in between these two in curvature. We do not know yet that whether this difference is generally true or not in individuals of different age and sex—we need more materials.

The diastema between lower canine and P_4 is not great, in comparison with recent apes.

The canine of Mandible III is not very large if compare with male anthropoid apes. It was greatly worn laterally on its posterior border. It is another character to reinforce us to believe that it is really an anthropoid, not hominid.

P_4 was worn not so greatly as other teeth but only on the lower part of its anterior sectorial surface. By this character, it differs from anthropoid ape.

Detailed description is due to a later occasion.

Formerly we always regarded the *Stegodon-Ailuropoda* fauna in South China cave to be a single geological age. By the new finds of mammalian fossils contemporary to *Gigantopithecus*, the age of Liu-cheng cave deposits might now be regarded as Early Pleistocene. Therefore we are now facing a difficult problem to differentiate the *Stegodon-Ailuropada* fauna into different ages, based upon many forms retaining the same characters through thousands and thousands of years.

However, beside the fauna of *Gigantopithecus* cave, some hint of being younger in age as the mammalian fauna in caves in Chang-yang of Hupei is already noticed. Extensive search and regular excavation in the caves in the provinces south of Yangtze-kiang are imperative.

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亞洲前第三紀的"龍"

許 厚

亞洲的面積比歐洲和北美的面積要大得多，但是有關亞洲"龍"化石[1]的材料則比較少。然而，到現在爲止，我們已知道100屬古生代末期和中生代陸生龍類。這些材料在文獻上和陳列館方面都非常分散，這裏只記屬，不記種。至少還有十屬已發見，不過還未有人進行描述。(原文表1—表12見英文原文，此處從略。)

一. 迷齒類(參看表1)

印度的 *Gonioglyptus* 是 Prionolobus 層中一種較小的海生 Trematosaurid。更爲矯小的則是同時代的 *Aphaneramma* (斯庇茨堡)。其他相近種類也見於斯庇茨堡。斯庇茨堡與印度之間曾經有過大陸邊緣水道，這些"海生"迷齒類可能都生活在近岸地區，但是却在岸上生蛋。與之最近的屬是蘇聯的 *Benthosuchus*, *Wetlugasaurus*, *Volgasaurus* 和 *Volgasuchus* 以及斯庇茨堡的 *Sassenisaurus*。全椎類的 Brachyopids 則在南非 (*Batrachosuchus*)、澳洲 (*Truchosaurus*)、北美(*Hadrokkosaurus*, *Taphrosaurus*) 和南美 (*Pelorocephalus*) 有其最有親緣關係的屬。

二. 柱龍類(參看表2)

這一目最早代表是蘇聯二疊紀的 Nyctiphruretids。新前稜蜥 (*Neoprocolophon*)同蘇聯北部三疊紀的 *Leptoropha* 有親緣關係，也同 *Tichvisnkia* 和 *Phaatosaurus* (同地區)有親緣關係。

三. 龜類(參看表3)

歐洲也有一屬侏羅紀的 Plesiochelydid，它與 Thalassochelydids 相同，Baënids 則起源於北美的侏羅紀。曲頸的 Dermatemydids 開始於下白堊紀，它在中國的上白堊紀地層中分佈很廣。龜類在任何地方的白堊紀地層中都分佈很廣，但在中國只有上白堊紀的兩屬。初步挖到的 Dermochelyid(在莫斯科)有很扁平肋骨，長110厘米、寬10厘米，爪長50厘米，其殼的直徑可達3—4米。

四. 獸孔類(參看表4)

二齒獸類在三疊紀時分佈很廣，它的原產地爲蘇聯東部和東非，獸頭類也如此。但是在亞洲，獸頭類只有烏魯木齊獸一屬。在上三疊紀時，蹼龍類在世界各地都有分佈。

五. 楯齒龍類(參看表5)

楯齒龍類是哈斯教授在耶魯撒冷發見的，但是並未發表描述其特征的文章，迄今爲止楯齒龍僅發現於歐洲。

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1) 這裏所謂的"龍"指兩栖類、爬行類的各種化石。

六. 鰭龍類(參看表 6)

日本的 *Metanothosaurus* 被認爲和瑞士的 *Paranothosaurus* 相似。另一鰭龍是哈斯在巴勒斯坦發見的,也未發表。在上白堊紀時,蛇頸龍在世界各地都有分佈,但在中國只有一屬。

七. 槽齒類(參看表 7)

八. 蜥臀類(參看表 8)

在亞洲,也和在其他大陸一樣,蜥臀類很多;分佈也很廣。盧骨龍類在北美和歐洲似乎特別多。但是各類蜥臀類在亞洲都有很好的代表,並且在白堊紀有廣泛的分佈。在蒙古甚至曾發現過龐大的肉食類恐龍,其骨骼裝架於紐約和莫斯科。在莫斯科有一蜥脚類肋骨(採自蒙古),它的頭狀突頸長達 20 厘米。

九. 鳥臀類(參看表 9)

最早的鳥臀類是侏羅紀的三巴龍,但是即使在下白堊紀也只有很少幾屬。很多類屬已在上白堊紀地層中被發見。值得特別注意的是在莫斯科裝架的巨大楯龍,其高度在五米以上。在同一博物館裏還有個別骨骼代表更大的個體。在年輕的個體上,其頭骨還沒有向後伸出的"鼻角"。鳥臀類分佈地點,西起哈薩克斯坦,南到印度,東到薩哈嶺,北到蒙古。在某些地方曾在發現鸚鵡嘴龍、原角龍和其他鳥臀類的地點找到了鳥臀類的蛋化石。

十. 鱷魚類(參看表10)

值得提出的是在亞洲發現的鱷魚化石爲數很少,在它們之間只有一個原始的屬。

十一. 喙頭類(參看表11)

在喙頭類方面,曾發現一些保存得很好的小個體的骨架。

十二. 有鱗類(參看表12)

三台龍的近屬曾在南非的下三疊紀地層中發現,另外一個屬 *Tanystropheus* 在歐洲有幾個相近種。蜥蜴類分佈很廣,開始於侏羅紀。 (楊鍾健譯)

譯 后 記

1. 許耐敎授此文於 1958 夏卽收到。自此以後關於各種"龍"化石在中國續有發見和記述,所以上表所列已不完全了。

2. 在許耐敎授低等四脚類古生物與系統演化一書中把三台龍當作歸柾龍類,今表仍列入有鱗類,恐此稿係舊稿。

PRE-TERTIARY SAURIANS OF ASIA

FRIEDRICH VON HUENE

(Abstract)

The gigantic Asian continent is much less investigated with respect to saurians than for instance North America or especially the small Europe. Nevertheless we know at

present of about 100 genera of late Paleozoic and Mesozoic age, mainly terrestrial saurians. They are very scattered in the literature and in museums. Here is proposed not to mention the species, but only the genera. At least 10 more genera have been found, but not yet described.

1. Labyrinthodontia

a. Rhachitomi typici: Fam. Trematosauridae:

Gonioglyptus Huxley	Lower Triassic	Chideru, Salt Range
	Middle Triassic	Raniganj, India

b. Neorhachitomi, Fam. Benthosuchidae:

Gondwanosaurus Lydekker	Lowest Triassic	Bijori, Central India

c. Stereospondyli, Fam. Brachyopidae:

Brachyops Owen	Middle Triassic	Mangli, India
Pachygonia Huxley	Middle Triassic	Panchet, India
Indobrachyops Huene + Sahni	Lower Triassic	Panchet, India

Gonioglyptus is a very slender marine Trematosaurid from the Prionolobus-beds. Only the contemporary *Aphaneramma* from Spitzbergen is still more slender. Other relatives are also from Spitzbergen. There are epicontinental aquatic ways between Spitzbergen and India. These "marine" Labyrinthodonts must have lived near the shore and laid their eggs on land. The nearest relatives of *Gondwanosaurus* were *Benthosuchus*, *Wetlugasaurus*, *Volgasaurus* and *Volgasuchus* in Russia and *Sassenisaurus* in Spitzbergen. The stereospondyl Brachyopids have their nearest relatives in South Africa (*Batrachosuchus*) and in Australia (*Truchosaurus*), also in North America (*Hadrokkosaurus*, *Taphrosaurus*) and South America (*Pelorocephalus*).

2. Procolophonia

Fam. Procolophonidae:

Neoprocolophon Young	Lower Triassic	Shansi, China

The first representatives of this order are the Nyctiphruretids in the Russian upper Permian. *Neoprocolophon* has good relations with *Leptoropha* in the North-Russian lower Triassic and also with *Tichvisnkia* and *Phaatosaurus* from there.

3. Testudinata

a. Cryptodira, Fam. Plesiochelyidae:

Plesiochelys Rütimeyer	Upper Jurassic	Szechuan, China
Tienfuchelys Young & Chow	Upper Jurassic	Szechuan, China

b. Pleurodira, Fam. Thalassemydidae:

Jaxartemys Riabinin	Upper Jurassic	Kuratau, Central Asia

Fam. Baënidae:

Chengyuchelys Young & Chow	Upper Jurassic	Szechuan, China

c. Trionychia, Fam. Dermatemydidae:

Heishanemys Bohlin	Upper Cretaceous	Kansu, China

Lindholmemys Riabinin	Upper Cretaceous	Kysil Kum, Mongolia
Peishanemys Bohlin	Upper Cretaceous	Mongolia
Sinochelys Wiman	Lower Cretaceous	Shantung, China
Tsaotanemys Bohlin	Upper Cretaceous	Kansu, China
Ymenemys Bohlin	Upper Cretaceous	Kansu, China
Fam. Cheloniidae:		
Osteopygis Cope	Upper Cretaceous	China
Cinemys Wiman	Lower Cretaceous	Shantung, China

? **Fam. Dermochelyidae: Upper Cretaceous Mongolia**

One of the Jurassic Plesiochelydid genera is also known from Europe; it is the same with the Thalassochelydids and the Baënids do begin in the Jurassic in North America. The cryptodir Dermatemydids do begin in the lower Cretaceous and are widely distributed in China in the upper Cretaceous. The Chelonids are very numerous in the Cretaceous and Tertiary time everywhere, but in China there are only two upper Cretaceous genera. The eventual Dermochelyid mentioned consists (in Moscow) of quite flat rib-fragments (without natural ends) of 110 cm in length and 10 cm broad and of claws 50 cm long; its shell would have a diameter of 3—4 m.

4. Therapsida

a. Anomodontia:		
Dicynodon Owen	Lower Triassic	Tonkin; and Singkiang, China
Lystrosaurus Cope	Lower Triassic	Singkiang, China
Sinokannemeyeria Young	Upper Triassic	Shansi, China
b. Therocephalia:		
Urumchia Young	Upper Permian	Singkiang, China
c. Ictidosauria:		
Bienotherium Young	Upper Triassic	Yünnan, China
Kunminia Young	Upper Triassic	Yünnan, China

Anomodonts in the Triassic time are distributed very far; Eastern Russia and East Africa are the nearest countries, where they are at home. For the Therocephalia the same is to be said. It is almost astonishing that *Urumchia* is the only Asian genus. Ictidosauria in the uppermost Triassic are distributed in all parts of the world.

5. Placodontia

Several	Triassic	Palestina

They were found by Professor G. Haas in Jerusalem, but have not yet been published. Until now they have been only known from Europe.

6. Sauropterygia

a. Nothosauridae:		
Metanothosaurus Yabe & Shikama	Middle Triassic	Japan
Nothosaurid (undescribed)	Triassic	Palestina
b. Pliosauridae:		
Sinopliosaurus Young	Jura-Cretaceous limit	Szechuan, China

The Japanese *Metanothosaurus* is said to have a relative similarity to the *Paranothosaurus* in Switzerland. Another Nothosaurid has been found by Prof. Haas in Palestina, but not yet described. In the upper Cretaceous time Pliosaurs are known from all seas; however, only a single genus has been found in China.

7. Thecodontia

a. Pseudosuchia:		
Platyognathus Young	Upper Triassic	Yünnan, China
Microchampsa Young	Upper Triassic	Yünnan, China
Chasmatosaurus Haughton	Lower Triassic	India China
b. Parasuchia:		
Pachysuchus Young	Upper Triassic	Yünnan China

8. Saurischia

a. Coelurosauria:		
Sinocoelurus Young	Upper Jurassic	Szechuan, China
Laevisuchus Huene	Upper Cretaceous	India
Jubbulpuria Huene	Upper Cretaceous	India
Coeluroides Huene	Upper Cretaceous	India
Dryptosauroides Huene	Upper Cretaceous	India
Velociraptor Osborn	Lower Cretaceous	Mongolia
Saurornithoides Osborn	Lower Cretaceous	Mongolia
Labrosaurus Marsh	Upper Jurassic	Szechuan, China
Ornithomimus Marsh	Upper Cretaceous	Mongolia
Ornithomimid genus (Young)	Lower Cretaceous	Shantung, China
Ornithomimoides Huene	Upper Cretaceous	India
Oviraptor Osborn	Lower Cretaceous	Mongolia
b. Pachypodosauria:		
Sinosaurus Young	Upper Triassic	Yünnan, China
Szechuanosaurus Young	Upper Jurassic	Szechuan, China
Chienkosaurus Young	Upper Jurassic	Szechuan, China
Indosuchus Huene	Upper Cretaceous	India
Gorgosaurus Lambe	Upper Cretaceous	Mongolia
Tarbosaurus Malejev	Upper Cretaceous	Mongolia
Tyrannosaurus Osborn	Upper Cretaceous	Mongolia
Alectrosaurus Gilmore	Upper Cretaceous	Mongolia
Jeholosauripus Yabe (foot prints)	Lower Jurassic	North-China
c. Prosauropoda		
Gyposaurus Broom	Upper Triassic	Yünnan, China
Yünnanosaurus Young	Upper Triassic	Yünnan, China
Lufengosaurus Young	Upper Triassic	Yünnan, China
d. Sauropoda		
Helopus Wiman	Lower Cretaceous	Shantung, China
Tienshanosaurus Young	Lower Cretaceous	Singkiang, China
Omeisaurus Young	Lower Cretaceous	Szechuan, China
Mamenchisaurus Young	Upper Jurassic	Szechuan, China
Laplatasaurus Huene	Upper Cretaceous	India

Antarctosaurus Huene	Upper Cretaceous	India
Chiayusaurus Bohlin	Upper Cretaceous	Kansu, China
Asiatosaurus Osborn	Lower Cretaceous	Mongolia
Mongolosaurus Gilmore	Lower Cretaceous	Mongolia
cf. *Brachiosaurus*	Lower Cretaceous	Mongolia
Kuangyuanpus Young foot prints	Upper Jurassic	Szechuan, China

In Asia the Saurischia are as well developed and distributed as in the other continents. Coelurosauria are much more numerous in North America and in western Europe. But most Saurischian lines are very well represented in Asia and are specially numerous in the Cretaceous time. Even the largest rapaceous genera have been found in Mongolia, whose skeletons are mounted in New York and in Moscow. In Moscow there is a long sauropod rib from Mongolia whose capitulum-neck is 20 cm long as is also the case with *Brachiosaurus*.

9. Ornithischia

a. Ornithopoda:		
Psittacosaurus Osborn	Lower Cretaceous	Mongolia
Protiguanodon Osborn	Lower Cretaceous	Mongolia
Sanpasaurus Young	Upper Jurassic	Szechuan, China
Tanius Wiman	Upper Cretaceous	Shantung, China
Mandschurosaurus Riabinin	Upper Cretaceous	Amur, Siberia
Saurolophus B. Brown	Upper Cretaceous	Mongolia
Bactrosaurus Gilmore	Upper Cretaceous	Kasakstan; Mongolia
Jaxartosaurus Riabinin	Upper Cretaceous	Kasakstan; Mongolia
Niponosaurus Nagao	Upper Cretaceous	Sachalin
b. Ponderopoda		
Protoceratops Granger	Upper Cretaceous	Mongolia
Microceratops Bohlin	Upper Cretaceous	Kansu, China
Ornithischian eggs	Upper Cretaceous	Shantung and Mongolia
c. Thyreophora		
Lametasaurus Matley	Upper Cretaceous	India and Mongolia
Peishanosaurus Bohlin	Upper Cretaceous	Kansu, China
Viminicaudus Malejev	Upper Cretaceous	Mongolia
Syrmosaurus Malejev	Upper Cretaceous	Mongolia
Stegosaurides Bohlin	Upper Cretaceous	Kansu, China
Talarurus Malejev	Upper Cretaceous	Mongolia
Sauroplites Bohlin	Lower Cretaceous	Kansu, China
Heishanosaurus Bohlin	Upper Cretaceous	Kansu, China
Pinacosaurus Gilmore	Upper Cretaceous	Mongolia
Stegosaurid genus	Upper Cretaceous	Szechuan, China

The existence of the Asian Ornithischians is first demonstrated by the Jurassic *Sanpasaurus*. Also in the lower Cretaceous time there are only a few genera represented; the bulk of them only comes in the upper Cretaceous. Remarkable among them is the gigantic *Saurolophus*; a mounted skeleton of it stands more than 5 m high in the Museum of Moscow. In the same Museum there are even single bones of still larger