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广东南雄白垩纪龟类一新种

叶 祥 奎
（中国科学院古脊椎动物与古人类研究所）

本文记述的标本是古脊椎动物与古人类研究所 1962 年广东南雄野外队采集的。据采集人张玉萍等报导(张、童, 1963), 化石产自南雄群, 同产的有恐龙蛋化石。后者已经杨鍾健教授研究(杨, 1965), 地质报告也已由张玉萍等发表(同上),本文仅就龟化石作一记述。

标 本 記 述

隐颈龟亚目 Cryptodira

南雄龟科 Nanhsiungchelyidae fam. nov.

科的特征见代表属南雄龟属。

南雄龟属 *Nanhsiungchelys* gen. nov.

属的特征见属型种乌径南雄龟。

乌径南雄龟 *Nanhsiungchelys wuchingensis* sp. nov.

（插图 1—3; 图版 I—IV）

标本: 一个相连的背腹甲,左侧和后部破损,背甲上大部分骨板已无法辨认; 一个头骨和与其相连的下颚, 前上颚骨缺失; 8 个破损的颈椎;右肩带和左乌喙骨的远端部分;右肠骨和右坐骨(?); 右肱骨, 以及左右分别挤压相连一起的左肱骨、左右挠骨、尺骨、腕骨、掌骨和趾骨等。野外地点编号 6225; 标本登记号 V. 3106。

产地和时代: 广东南雄乌径腊树园;南雄群,晚白垩世。

特征: 个体大。背腹甲表面披有角质盾片, 头骨和背腹甲上都有纹饰。背甲前缘深凹,至少有一块八角形椎板。骨桥宽,有缘板,腹甲与背甲缝连。有喉盾,但无间喉盾。内腹甲大,略成菱形,肱胸沟割切内腹甲的后部。头骨宽大,顶骨部分自后向前轻凹,颞颥顶盖完全,鳞骨和顶骨相接。吻长,眼侧视,位于头骨前后向的中部。翼骨宽, 内鼻孔前位, 腭骨只到内鼻孔前缘。方骨后缘不闭塞。颈椎短,无显著的横突和神经棘,后部颈椎的两后关节面显著分开。前乌喙骨和肩胛骨成 105°, 乌喙骨远端扩张。

标本描述: 背腹甲　背甲保存不好,因挤压左右两侧上下重迭, 现虽已拉平, 但按其纹饰观察,显然已有很大错动,且因各骨缝破坏殆尽,无法复原,图版 I 图 1 仅表示背甲总的轮廓;腹甲除左侧因外露地表同背甲一起被破坏外, 后部也有残缺, 因而某些腹甲后部的骨板位置也无法确定。

背甲中部适度隆起, 中部长 970 毫米, 中部宽约 700 毫米。大多数骨板骨缝不清,但在中部可明显看出一块八角形的椎板,长 104 毫米,宽 115 毫米(图版 I, 图 1)。背甲前缘

显著深凹，估计可能有一甚为横宽的颈板。盾沟破坏殆尽，因而除部分缘盾外，所有背甲上其他盾片的构造皆无法判定。腹甲以广阔的骨桥和背甲缝连，其中部全长为830毫米，后端终止于背甲之前约205毫米，前端似略增厚，伸出背甲之前约80毫米。骨桥前后长450毫米，大于腹甲全长的二分之一。骨桥上未见有明显的下缘盾构造。内腹甲大，略成菱形，中部长190毫米，宽195毫米，前端三分之一和后端三分之一处分别被喉肱沟和肱胸沟所割。喉盾中部长140毫米，肱盾因为肱胸沟向前成"人"字形突起，大大压缩了它的中部长度（45毫米）。胸腹沟仅中部部分保存，胸盾中部长180毫米。胸盾以后的盾沟皆不清楚，故有关腹盾、股盾和肛盾的形状和大小都不能判定。腹甲中沟构造非常特殊，在一般龟类中，该沟常是从腹甲前端开始，向后贯穿整个腹甲中部，直至腹甲后端。但在我们标本上，该沟从腹甲前端开始后，行至内腹甲前缘，骤然消失，在内腹甲中部复出现，但在内腹甲后部又再度消失，而从内腹甲后缘开始又复出现，继续向后伸延。但有意思的是，自胸盾以后，该沟似乎大大向左偏斜，远离腹甲中部（图版II，图1）。上述这些现象如果是原生的话，则确是很大变异，在一般龟类中是很罕见的。腹甲上的骨缝除上舌缝和内腹甲外清楚可见，从而可肯定除上腹甲和内腹甲的界限外，其他骨缝皆模糊不清。

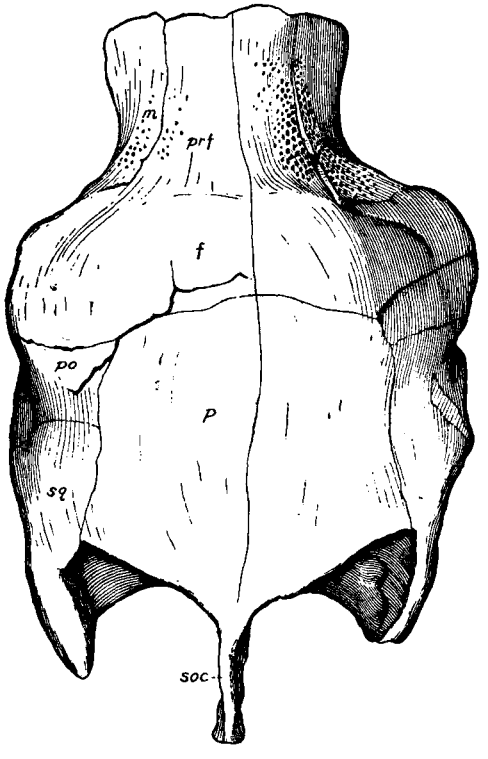

插图1. *Nanhsiungchelys wuchingensis* gen. et sp. nov., V.3106. ×1/3. 头骨背视。简字系一般采用者（Dorsal view of skull. Abbreviations as usually adopted）.

背腹甲表面上都有纹饰，主要由凹坑组成，但有的地方凹坑很浅，因此比较平滑；而另一些地方凹坑较深，以致各凹坑的上凸边缘互相连接，形成较为显著的沟纹纹饰。

头骨和下颚　头骨和下颚还相连保存一起，头骨上除前上颚骨破损外，其他部分都较完整。但遗憾的是有些骨缝不太清楚，因而部分骨片的界限不易确切肯定。在头骨表面上还可看到一些沟纹构造，这可能是角质盾片的遗迹。

头骨宽大，后部略高，前部自额骨往前骤向下陡斜而变为低平。头骨的最大宽度位于颞颥部，宽185毫米。两眼眶间的宽度为180毫米。外鼻孔后缘到上枕嵴末端长285毫米，估计头骨全长应为300毫米左右。吻长，向前伸，略成圆筒状，眼眶前缘到外鼻孔后缘长95毫米。顶骨宽大，后部轻度前凹，而颞颥顶盖完全，其构造与两栖龟亚目或隐颈龟亚目的海龟类的近似。鳞骨与顶骨相连，鳞骨的后突起明显，其长度仅稍比上枕嵴为短。眶后骨很大，组成眼眶后缘及部分上缘和下缘。额骨的界线不清，未知是否抵达眼眶边缘。额骨前面是一对纵长的前额骨，鼻骨未见。眼眶孔完全侧位，顶视不见，约位于头骨全长的中部。孔椭圆形，长径43毫米，短径28毫米。在左右眼眶的前壁各有一块骨头，这不

是泪骨而是前额骨的下降突起部分，向下应与锄骨相连。上颚骨甚大，由头骨前部侧面一直伸延到腹面，从而迫使口腔不能开口于头骨前端而开口于头骨腹面。方骨小，后缘开口。颧骨和方颧骨的位置和构造如插图 2 所示。

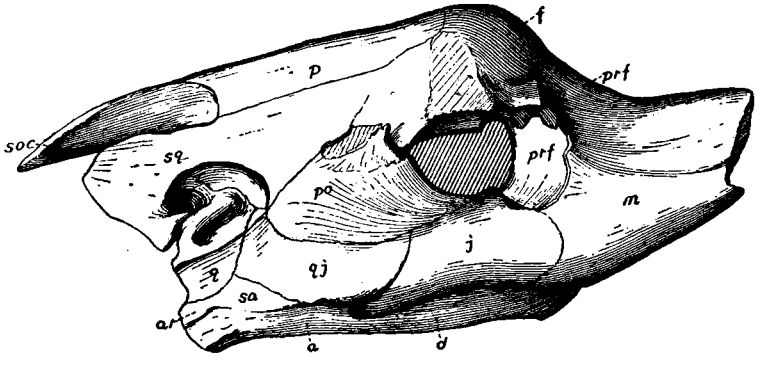

插图 2. *Nanhsiungchelys wuchingensis* gen. et sp. nov., V. 3106. ×1/3. 头骨和下颚右侧视。简字系一般采用者 (Right side view of skull and lower jaws. Abbreviations as usually adopted).

头骨腹面的各骨界线都不太清楚。翼骨很宽大，可能向后伸延到基蝶骨和方骨之间。内鼻孔的位置甚靠前，孔大，椭圆形，长径 28 毫米，短径 23 毫米，两孔被锄骨隔开。腭骨不完全覆盖内鼻孔，而只终止于内鼻孔的前缘(图版 III，图 3)。下颚粗壮，主要由齿骨组成，上隅骨和关节骨等都较小，界线不清。下颚联合长 30 毫米。

在头骨和下颚的表面上都有凹坑纹饰，特别是吻部表面，更为明显(图版 III，图 1)。

颈椎　8 个颈椎还相连保存一起，但第一、二颈椎的构造已完全损坏，其他颈椎也各有不同程度的破损。椎体较短而宽，从保存较好的后部几个颈椎的关节面来看，两关节面左右显著分开，当中并留有很大的凹隙，其构造与隐颈龟类甚似，表示这种动物生活时，颈项可垂直弯曲缩回壳中。颈椎上无颈肋，也无明显的神经棘和横突，与一般两栖龟类的不同。颈椎腹面中部有明显的稜嵴，这稜嵴在后面两个颈椎上仅存在于前部，而在前面几个颈椎上却贯穿颈椎全部。8 个颈椎全长约 460 毫米，约为背椎全长(按背甲估计约为 700 毫米)的 65%，显然这动物的颈项较短，应是一种比较原始的龟类。

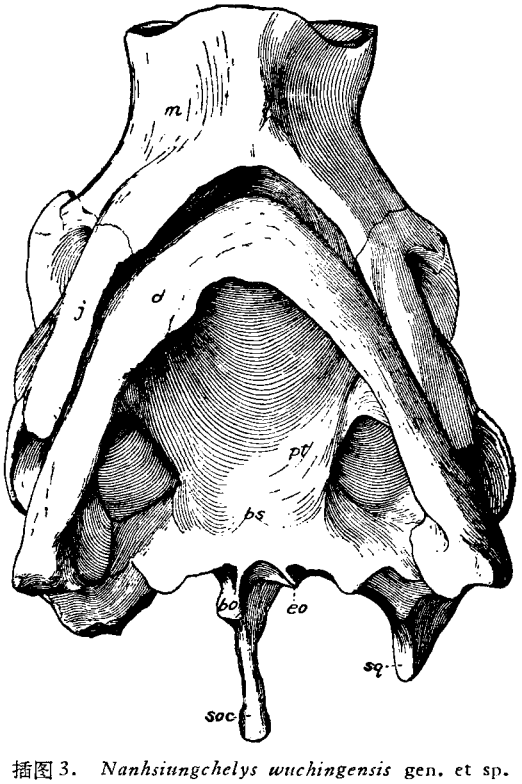

插图 3. *Nanhsiungchelys wuchingensis* gen. et sp. nov., V. 3106. ×1/3. 头骨和下颚腹视。简字系一般采用者 (Ventral view of skull and lower jaws. Abbreviations as usually adopted).

肩带　右肩带保存相当完整，仅乌喙

骨近端关节部分略损。左肩带只前乌喙骨的远端部分保存。肩胛骨略扁平，与前乌喙骨成105°。前乌喙骨长，远端部分略扩张，内缘并稍向上扭转。乌喙骨宽扁，全长180毫米，远端甚为扩张，其远端宽度（93毫米）为其近端宽度（31毫米）的3倍。

腰带　腰带保存不好，仅右肠骨和一破损的右坐骨（?）为代表。肠骨不长，全长约120毫米，但很粗壮。在肠骨的下端外侧，还可清楚看到关节面，显然是组成髋臼上部的关节面。坐骨也很粗壮，从靠近中央部分的构造观察，显然左右两坐骨在中部互相联合，联合部的前端还有一"凹隙"，表示生活时可能还附有柔软组织。坐骨的外端也有一个关节面，应是组成髋臼后下部的关节部分。坐骨的后部突起业已部分破坏，但仍可看出有一个较为宽大的后部突起。

前肢　这部分的骨骼除一块右肱骨单独完整保存外，其他左肱骨、左右挠、尺骨及其肢梢部分的骨骼都还左右分别相连保存一起，并有的已经严重挤压变形，有的已大部或小部分破损。

右肱骨全长227毫米，相当粗壮，背腹扁平而略穹窿，两侧成"S"形弯曲。肱骨头圆形，位置不在肱骨的近端顶部而略靠下，可能为挤压所致。侧结节粗壮，三角棱突也很粗大。这两节突所成的角度较小，并多少已转向腹面，这是隐颈龟亚目的特征。外髁孔存在，其构造和一般非海生龟类的相似，不象海龟类那样退化成外髁沟（图版IV，图1，2）。左肱骨仅远端部分保存，并还与挠、尺骨等相连一起，但已经强烈受压而变形。

左右挠骨保存都很好。挠骨长92毫米，中部收缩，两端扩张，成线轴状。尺骨虽然左右两侧都有保存，但都已受压破损，特别是右尺骨，已不成型。从保存较好的左尺骨来看，其长度至少不比挠骨为短，但估计相差不致很大，这也和某些海生类型的不同。

挠、尺骨以下的骨骼包括腕、掌、趾骨等全部挤压相连一起，并已严重变位，因而有关腕骨数目和趾式等都无法肯定。但显然可以看出，掌骨和趾骨都甚宽短，每趾（5趾）末端各有一个粗壮的爪骨。这些特征表明，这种龟不可能是海生或典型水生的动物。

有意思的是，在左右前肢的远端部分，背面都保存有一块骨板，覆盖着掌骨和趾骨，只有爪骨外露（图版IV，图3，5）。这块骨板很薄，厚仅4—5毫米，表面上也有微弱的凹坑纹饰，与甲壳上的纹饰近似，因而我们怀疑是否是由甲壳上粘附来的，但有两点不易解释：第一，固然左边甲壳已毁坏，有粘附到左脚上的可能，但右边甲壳基本上完整，而右脚上也有骨板；第二，更重要的，如果是粘附来的话，怎么会这么凑巧左右两脚上都有，并还粘附在相同的部位上。所以，看来这两块骨板有可能是原生的，是脚部远端的保护物。据文献记载，脚上具有这种保护物的只在隐颈龟亚目陆龟科的某些属（如 *Testudo*, *Homopus*, *Stylemys* 等）中见过，主要是由许多块皮膜小骨（dermal ossicles）愈合而成（在我们标本上看不见小骨，而只是一块骨板），并有时股骨和尾巴上也有。

鉴定和討論

南雄标本的头骨顶盖完全，鳞骨与顶骨相接，以及头骨上有纹饰等特征，的确与两栖龟亚目的很近似。但是，如我们已在描述中所见到的，它的其他部分的构造，却与两栖龟亚目的有很大的不同。就颈椎的构造来说（颈椎的构造是龟鳖目中主要分类依据之一），两栖龟亚目的颈椎通常都有较高的神经棘，有发达的横突，有的原始类型甚至还有颈肋。这

些特征，在我们标本上都沒有清楚看到，而看到的却是隐颈龟式的后部颈椎的左右关节面显著分开。另外，无间喉盾、齿骨占下颚的绝大部分、翼骨很宽、以及腰带不与背腹甲相连等，都是隐颈龟亚目的特征。更重要的是，在我们标本的背甲上，可清楚地看到一块宽大八角形的椎板，这是隐颈龟亚目中比较进步的陆龟科的特征。还有，如上所述，我们标本的肱骨构造也是隐颈龟式的，并且它的左右前脚上那两块"外加"的骨板构造，也与陆龟科中某些属的构造很近似。由于这些原因，所以我们把南雄大龟归入隐颈龟亚目。

在隐颈龟亚目各科中，南雄龟的头骨构造虽然可与一般海龟科的比较，它的深深后凹的背甲前缘也与海龟科中某些种类的相似，但它的坚实的背腹甲、宽大的內腹甲和足部的构造等却完全排斥了这个可能性。因为即便是早期海生龟类，它们的背腹甲多少也已具有未完全骨化的空隙，而决非象南雄龟这样坚实。并且它们的鳞骨也不向后显著突出，坐骨也沒有后面的突起，肱骨的外髁孔也已退化为外髁沟。果然，平胸龟科（Platysternidae）的头骨顶盖也是完全的，但该类动物的背腹甲是用韧带相连的，并只有东南亚一个现生属为代表。另外，南雄龟的具有体积较小的腹甲虽同泥龟科（Dermatemydidae）的有所近似，但可惜在我们标本上看不清楚有否下缘盾存在（泥龟科一般都有下缘盾），并且我们标本的背甲保存太坏，不能进行全面对比。不过，可以肯定的是，泥龟科的头骨顳颥顶盖不是完全的，椎板也不会有八角形的。我们标本从其颈椎特征、肱骨和足部的构造以及具有八角形椎板等性质来看，似乎应与陆龟科最为接近。陆龟科最早出现于始新世，亚洲、欧洲、美洲都有代表。但这些始新世的代表在构造特征上与后期的陆龟已无很大差别，说明它们还不是该科的原始类型，眞正的原始祖先似乎应该到古新世乃至中生代去找。南雄龟虽为中生代的代表，并还具有某些原始性质（特别在头骨上），但它不可能是陆龟科的直接祖先，至少个体嫌大，表示业已特化，并且头骨上的构造与陆龟科的差异也太大。

从以上讨论中我们可以得出这样的结论，南雄的大龟标本与龟类已知各科都不相同，它可能代表两栖龟亚目进化为隐颈龟亚目过程中的一个侧枝，是隐颈龟亚目中性质比较原始的一个新科，名为南雄龟科（Nanhsiungchelyidae fam. nov.），乌径南雄龟（*Nanhsiungchelys wuchingensis* gen. et sp. nov.）为其科型属种。

在隐颈龟亚目中，据目前记录所知，除泥龟科的个别属最早出现于晚侏罗世外（泥龟科的大多数属皆出现于晚白垩世），绝大多数其他科的龟类都出现于晚白垩世或第三纪早期。南雄龟从其头骨上具有某些原始特征来看，显然与一般中生代类型近似，但另方面，它的背甲和肢骨上的某些构造却可与陆龟科的比较，而陆龟科最早出现于始新世。因此南雄龟的时代不可能是中生代的早期或中期，而很可能是中生代的末期——晚白垩世，甚至晚白垩世晚期。这个结论，也可从其他化石的研究结果和野外地层观察等得到佐证。与南雄龟同产的有恐龙蛋片化石，这些蛋片连同在其他地方发现的成窝蛋和蛋片等经杨鍾健研究结果（杨，1965），认为应是晚白垩世的产物[1]。另外，根据张玉萍等的报告（张、童，1963），以及笔者等（1963—1964）在南雄盆地进行考察时所见，产南雄龟的南雄群与上覆的罗佛寨组成假整合接触，而在罗佛寨组中发现了属于第三纪早期的龟科（Emydidae）化石和很可能属于古新世的钝脚类等哺乳动物化石。所有这些事实都说明南雄群的时代

1）与南雄龟同地点产出的还有两个小圆蛋化石（*Oölithes nanhsiungensis* Young），杨认为可能就是南雄龟的蛋。

应是晚白垩世。

南雄龟从其次生腭不完全覆盖内鼻孔，短粗的四肢，特别是宽短的趾骨和粗壮的爪骨等构造来看，表示它不可能是一个很好的游泳动物，而比较可能是一种陆生或至多是半水生的龟类。南雄龟的颈椎上沒有明显的神经棘和横突，表示它的脖子是可以弯曲的。并且，由于颈椎的关节面的位置较低，后部颈椎的两个后关节面左右显著分开，表示它的脖子不是侧面弯曲而可能是垂直弯曲缩入壳中的。后部颈椎两个后关节面之间的深凹，是当脖子垂直弯曲时容纳前部颈椎用的。如果上述的前足末端背面的骨板是该动物的一种原生构造的话，则当遇到危险时，除了把头、尾和四肢缩回壳中外，露在甲壳凹隙处的足的远端部分，也因此得到了很好的保护。

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A NEW CRETACEOUS TURTLE OF NANHSIUNG, NORTHERN KWANGTUNG

YEH HSIANG-K'UEI

(*Institute of Vertebrate Paleontology and Paleoanthropology, Academia Sinica*)

In the collection of fossil vertebrates of Nanhsiung, Kwangtung collected by a field party of Institute of Vertebrate Paleontology and Paleoanthropology during the Winter of 1962 to the Spring of 1963 are many fossil turtles, one of which is a very large hard-shelled form from Cretaceous bed, containing not only the carapace and plastron, but also the skull, lower jaws and parts of other endoskeleton. The structure of this specimen is very interesting, and a description and discussion of it are now made as follows.

Suborder Cryptodira

Family Nanhsiungchelyidae, fam. nov.

With the diagnosis of the type genus *Nanhsiungchelys*.

Genus *Nanhsiungchelys*, gen. nov.

With the diagnosis of the type species *Nanhsiungchelys wuchingensis*.

Nanhsiungchelys wuchingensis, sp. nov.

(Text-figs. 1—3; Pls. I—IV)

Materials: Carapace and plastron with their left side and posterior margin missed, the plates of carapace were displaced due to compression; skull associated with lower jaws, the premaxilla of skull damaged; eight partly broken cervical vertebrae; right pectoral girdle and distal part of a left precoracoid; right ilium and ischium(?); right and left anterior limbs, of which most bones are crowded together and more or less damaged and displaced due to compression, except the right humerus which is well preserved isolatedly. Field No. 6225; Cat. No. of IVPP V.3106.

Locality and Horizon: Lashuhyuan, Wuching, Nanhsiung, Kwangtung; Nanhsiung Group, Upper Cretaceous.

Diagnosis: Size large, shell covered with epidermal scutes. Surface of skull, lower jaws, carapace and plastron ornamented. Anterior rim of carapace much concaved, and with, at least, one octagonal neural. Bridge broad, peripherals present, plastron articulated suturely to carapace. Gular scutes present, but no intergulars. Entoplastron large, somewhat rhombic in shape, and intersected deeply by humero-pectoral. Skull large, emarginated slightly from behind, temporal region extensively roofed, squamosals contacted with parietals. Snout long, orbits placed laterally at a position middle of fore-and-aft extent of skull. Pterygoids broad, choanae situated well forwards, not underfloored entirely by palatines. Quadrates notched behind for stapedial rod. Cervical vertebrae short, neural spine and transverse processes invisible. Posterior cervical postzygapophyses wide apart. Precoracoid forming an angle of 105 degrees with scapula. Coracoids expanded distally.

Description: The carapace is moderately convex above, with a total length at mid-line of 970 mm, width, about 700 mm. The structure of the carapace is mostly damaged, but an octagonal neural is clearly seen in its middle region. The plate has a length of 104 mm, a width, of 115 mm (Pl. I, fig. 1). On the right margin of the carapace, four peripherals are well preserved, but the total number is uncertain. The plastron articulated suturely to the carapace, and projected anteriorly beyond the carapace about 80 mm, and ended posteriorly before it about 205 mm. Length of the bridge is 450 mm, longer than half the length of plastron (830 mm). The entoplastron is large, wider than long, rhombic in form, and intersected respectively by gulo-humeral and humero-pectoral anteriorly and posteriorly. Length of gular at mid-line is 140 mm, of humeral, 45 mm, and of pectoral, 180 mm. The sulci behind the pectoral are obscure, the shape and measurement of other scutes are thus undeterminable. The structure of plastral median sulcus is somewhat abnormal, it appears in gulars, in pectorals, but disappears partly in humerals; moreover, beginning from abdominals, it runs seemingly not along middle line but obliqued toward left side (Pl. II, fig. 1). The sutures of plastron are unclear, except those of entoplastron and epiplastra. All the surfaces of carapace and plastron are sculptured by ornamentation which essentially consists of pits. Because the deepness of pits is different in there and elsewhere, the ornamentation is thus obscure or abrupt. Somewhere when pits are impressed deeply, the walls surrounding them thus connected each other, then some conspicuous ridges appeared.

The skull is broad, large, and somewhat high in posterior region, but anterior to frontal, it descended suddenly and forms a low plain. In the temporal region, it has a maximal width of 185 mm, while that between orbits is 180 mm. Length from posterior rim of external narial opening to the posterior end of supraoccipital process is 285 mm, the total length of the skull is estimated about 300 mm. The snout is long and has a length from posterior rim of external narial opening to the anterior border of orbit of 95 mm. The skull roof is complete, only emarginated slightly from behind. The parietals are large, and meet with squamosals which extend backwards and only slightly shorter than supraoccipital process. The postorbitals are large too, and form not only the posterior border of orbits but also part of the upper and lower borders of the same. The boundaries of the frontals are unclear, anterior to it there is a pair of elongate prefrontals extending forwards to the external narial opening. We do not know whether the nasals are present or not, but at least no suture separating nasals and prefrontals can be traced. The orbits are placed laterally in a position about middle part of the fore-and-aft extent of skull, and have a longer diameter of 43 mm, a shorter diameter of 28 mm. As shown in text-figure 1, on the anterior wall of orbits a descending process of prefrontal is clearly observed. Because the maxillae of our specimen extend greatly from lateral side of snout to the under side of the same, the mouth of the animal is thus forced to the ventral side of skull rather than the anterior edge. On the surface of the bones of the skull, there are some impressions of sulci, we doubt whether the skull was covered with horny scutes when it lived.

The pterygoids of the skull are broad and large, and extend backwards between the quadrates and basisphenoids, but the suture between pterygoids and basisphenoids is invisible. The choanae are far forwards situated, and separated by vomer. The palatines reached only to the anterior border of choanae and not floored them (Pl. III, fig. 3).

The lower jaws are stout, and with a length of symphysis about 30 mm, they are composed largely of dentaries, the supraangular and articular are small. Surface of the lower jaws and skull is sculptured by pits, especially in the region of snout, where the ornamentation is considerable.

Eight cervical vertebrae in connection are preserved. The structure of the first and second ones was damaged wholly, while that of the posterior ones is somewhat better. All the centra of the vertebrae are short and broad, and with their postzygapophyses, as shown by its posterior ones, wide apart (Pl. I, fig. 2; Pl. II, fig. 2). No conspicuous neural spine or transverse process is seen on the vertebrae, but at the middle of the ventral side, there is a median ridge, which appears in last ones only in anterior part, while in others it runs from anterior to posterior. The total length of eight cervical vertebrae is about 460 mm, it is about 0.65 times the same length of dorsal which is estimated on carapace about 700 mm.

The three bones of right pectoral girdle are well preserved, but that of left one is only represented by a distal part of precoracoid. The scapula is somewhat flat, and bears an angle with precoracoid in 105 degrees. The coracoid is very thin and broad, the distal width (93 mm) of it is three times of its proximal one (31 mm).

Of the pelvic girdle, only an ilium and a broken ischium(?) of right side are available. The ilium is not so long (about 120 mm) but stout, and so is the ischium. On the outside of each of these bones is an articular face. They are apparently partial articular surface of acetabulum. Although the posterior part of ischium was partly damaged, the posterior process of it is clearly present.

With the exception of an isolated humerus of right, the humerus, radius, ulna and manus of left, and the radius, ulna and manus of right are connected together respectively in preservation. Most of the bones are disformed due to compression, and some are damaged.

The right humerus is well preserved and 227 mm long. It is flat dorso-ventrally and arched from side to side in a "S" shape. The head of it is round, situated not at the top of its proximal end but at a lower position, probably resulted from compression. The lateral tubercle and deltopectoral crest of the humerus are remarkable, facing more or less ventrally, and forming a smaller angle between them, these are features of Cryptodira. The ectepicondylar foramen of the humerus is present, and is much comparable with that of nonmarine turtles.

Two radiuses, 92 mm long, expand at both ends and are constricted at middle. The two ulnae are also preserved but incomplete.

The manus of two fore-limbs are preserved, but all the carpi, metacarpi and phalanges are compressed and displaced greatly. The number of the carpus, and the phalangeal formula of the animal are thus undeterminable. However, the metacarpi and phalanges are clearly short and broad in shape, and the distal segments of five fingers are featured as strong, nail-like claw bones (Pl. IV, figs. 3, 4, 5, 6).

It is interesting to notice that on each of the dorsal surface of these two manuses just described is a bony plate. It is a thin plate (4—5 mm) covering the carpi, metacarpi and all phalanges except the claws. Although we cannot be sure whether the plate is an original cover of the manus or not, the structure of it is truly somewhat similar to that seen in some genera of Family Testudinidae.

Discussion: As we have seen in description, the structure of the skull of our specimen is really comparable with that of Suborder Amphichelydia, but those of the other parts are quite different. In Amphichelydia, the cervical vertebrae are usually characterized by high neural spine, well developed transverse process and sometimes (in primitive forms) cervical ribs which are invisible in the present turtle. On the contrary, the wide separated postzygapophysis of the posterior cervical vertebrae, the absence of the intergular, and, first of all, the presence of the octagonal neural are characters of Suborder Cryptodira. For these reasons, the present writer therefore vacillated long in systematic determination of our specimen between Amphichelydia and Cryptodira. It is here considered as a member of the latter because that the cryptodiran features seem to be more conspicuous.

By the character of the presence of the octagonal neural, we can distinguish the specimen of Kwangtung from all known families of Suborder Cryptodira except the Testudinidae. The structure of the cervical vertebrae and feet of our turtle is also comparable with that of the mentioned one. But in view of the character of the skull and the geological history of the Family, it seems better the present specimen as a new Family rather than to include it in Testudinidae. It may be an early branch of evolutional line of Cryptodira.

According to Chang and others that the fossil turtle here described was collected together with dinosaurian eggs from Nanhsiung Group (Chang and Tung, 1963). The fossil-bearing bed is apparently of Mesozoic age. But as we have seen above, some characters of our turtle are comparable with those of Cenozoic form, and from the Lofochai Formation, which overlay disconformably on the Nanhsiung Group, some Tertiary turtles and Paleocene pantolambdids were to be found. The age of Nanhsiung Group is therefore considered as Upper Cretaceous. The view is also supported by the result of study of fossil eggs (Young, 1965).

In view of the structure of the cervical vertebrae, perhaps the turtle just discussed could withdraw its neck straight back into the shell. Moreover, the short, stout limbs, and the short, broad phalanges are characters indicating that the animal is not a typical aquatic form, but probably a terrestrial or at most semi-aquatic form.

The writer is greatly indebted to Profs. C. C. Young, Minchen Chow, and Dr. S. T. Liu for their valuable help in this work.

图版 I 說明

Nanhsiungchelys wuchingensis gen. et sp. nov., V. 3106.

1 背甲背视 (Dorsal view of carapace);

2 颈椎腹视 (Ventral view of cervical vertebrae).


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Nanhsiungchelys wuchingensis gen. et sp. nov., V. 3106.

1 腹甲腹视 (Ventral view of plastron);

2 颈椎背视 (Dorsal view of cervical vertebrae).

Nanhsiungchelys wuchingensis gen. et sp. nov., V. 3106. ×1/3.

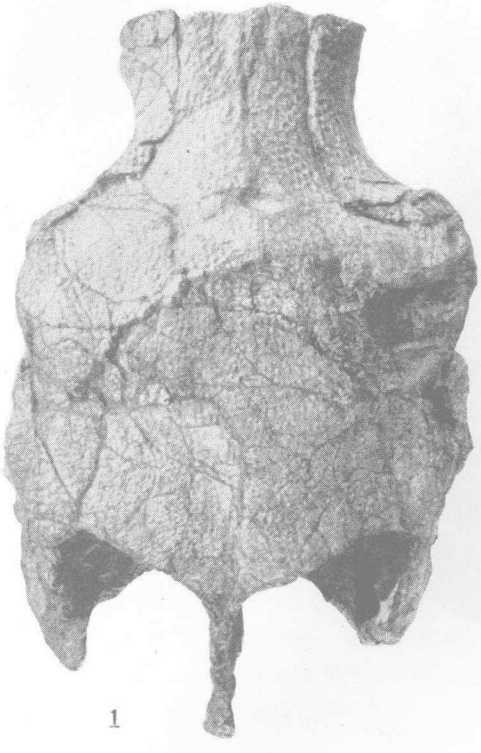
1 头骨背视 (Dorsal view of skull);

2 头骨和下颚腹视 (Ventral view of skull and lower jaws);

3 头骨和下颚后腹视,示内鼻孔 (Posterior ventral view of skull and lower jaws showing the choanae);

4 右肩胛骨背视 (Dorsal view of right scapula);

5 右乌喙骨背视 (Dorsal view of right coracoid).



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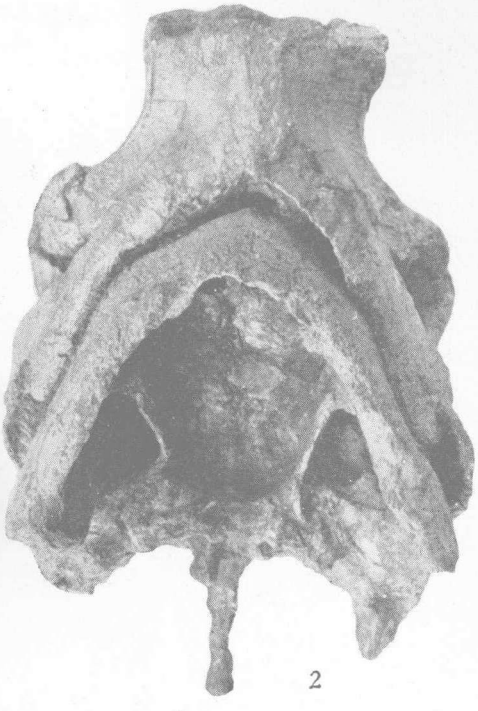

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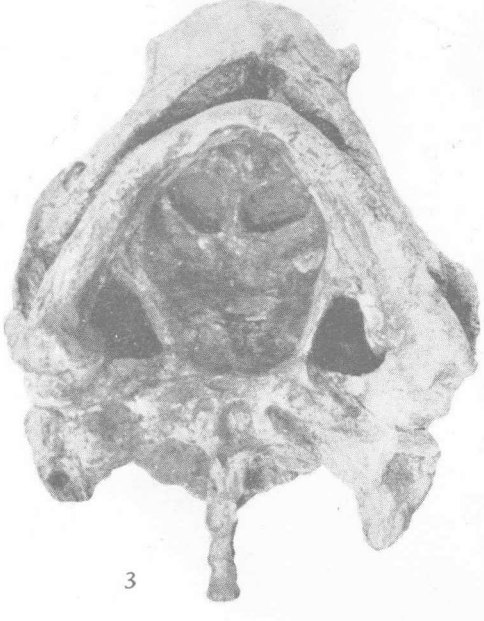

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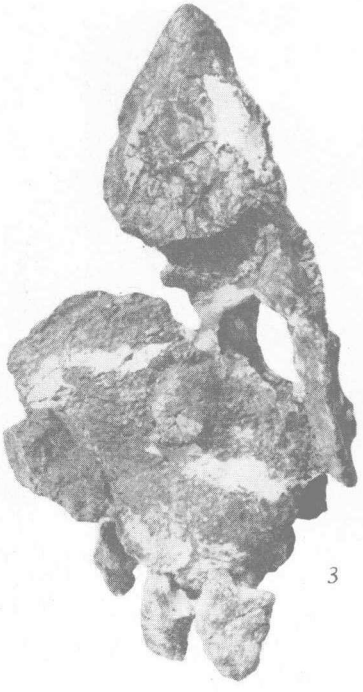

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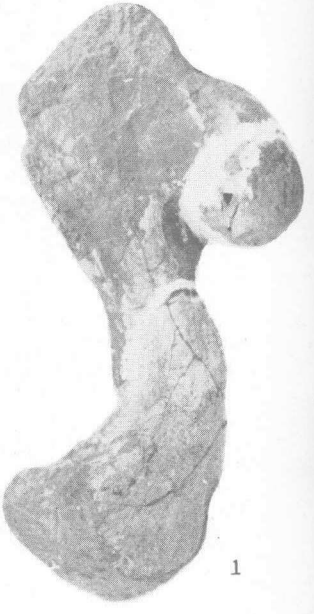

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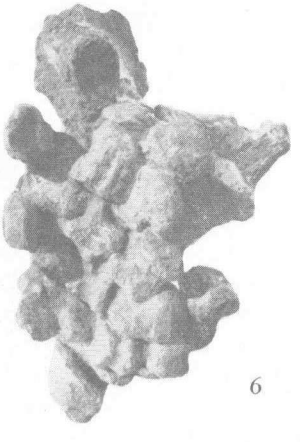

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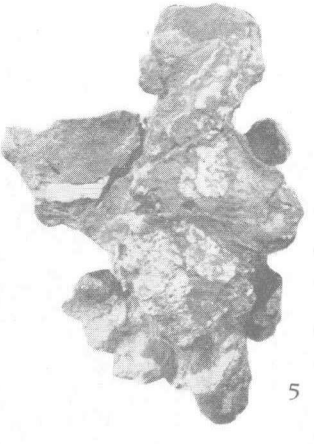

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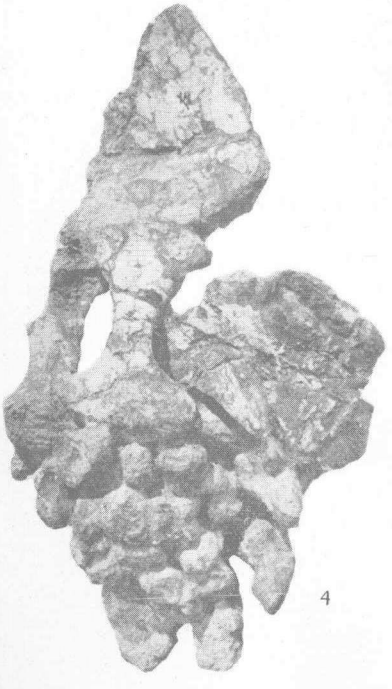

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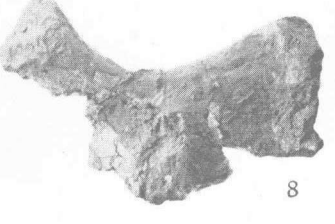

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图 版 IV 說 明

Nanhsiungchelys wuchingensis gen. et sp. nov., V. 3106. ×1/3.

1 右肱骨背视 (Dorsal view of right humerus);
2 同上,腹视 (Ventral view of 1);
3 左前肢背视 (Dorsal view of left fore leg);
4 同上,腹视 (Ventral view of 3);
5 右前肢背视 (Dorsal view of right fore leg);
6 同上,腹视 (Ventral view of 5);
7 右肠骨外视 (External view of right ilium);
8 右坐骨(?)腹视 (Ventral view of right ischium?).