

# 大巴山晚奥陶世 *Nankinolithus* 的发现

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当前所描述的标本, *Nankinolithus wanyuanensis* Cheng et Jian (新种), 系西北大学地质系 1958 年在大巴山中段——四川万源县的中巴乡发现的。标本产于厚约 1 米的黄绿色頁岩中。其下为具有干裂紋的紫红色石灰岩, 根据岩性及所含化石, 似应相当于长江中游及陕西汉中一带的宝塔石灰岩。其上为厚约 20 米的黑色頁岩、砂质頁岩及紫红色頁岩。頁岩中含有笔石 *Glyptograptus* sp., *Monograptus* sp. 及 *Rastrites* sp. 等下志留統常見的化石。

*Nankinolithus* 属名系卢衍豪于 1956 年创建的, 其属型为 *Nankinolithus nankinensis* Lu, 标本发现于南京湯山的湯头层(晚奥陶世), 以后又曾发现于浙西、黔北、川南等地, 其时代皆属晚奥陶世。故当前所描述的标本其产生时代属晚奥陶世似无疑間。

本文承中国科学院地质古生物研究所卢衍豪及斯行健两教授校閱全稿, 张文堂先生閱讀全文并提出宝贵意見, 笔者在此特致謝意。

## 化 石 描 述

科 *Trinucleidae* Hawle et Corda, 1847

属 *Nankinolithus* Lu, 1956

*Nankinolithus wanyuanensis* Cheng et Jian (新种)

(图 1—2)

**描述:** 背壳亚卵圆形, 长约 21 毫米, 寬约 17 毫米。头部半圆形, 长 12 毫米, 寬 17 毫米, 其长略大于背壳长度的 1/2。头鞍长卵圆形至卵圆形, 有二对短而浅的头鞍沟。頸环狹窄, 頸沟浅而寬。无側眼及側眼脊。后边缘沟向两侧逐渐变深, 至飾边处有一深的小陷孔。飾边前边狹, 向后側角增寬, 并分为凸起の頰边缘及下凹的内边缘。内边缘靠外边, 其上具有三排呈同心排列的小陷孔, 此种小陷孔深陷于放射状排列的陷坑内。頰边缘靠内边, 其上的小陷孔在头部前部作放射状排列, 在头部两侧則呈不規則交錯排列。頰刺长约 15 毫米, 約等于背壳长度的 3/4, 彼此平行向后延伸。

胸部由 6 节組成; 中軸部狹窄, 約小于胸部寬度的 1/5, 凸出, 向后逐渐尖削。肋节平寬, 内端水平延伸, 至其长度 2/5 的关节面处, 則略向后弯曲。第一对肋节前側緣圓, 末端尖; 第二至第六肋节的末端則呈截切状。肋沟浅而寬, 略向后斜伸。

尾部半椭圆形, 橫向延伸, 具一急剧向下斜傾的边缘, 其上有細的同心綫紋。中軸狹窄, 錐形, 由五个环节及一个圓形的末节組成。肋叶部平, 亚三角形, 具三对浅而寬的肋沟。

**討論：**当前的新种，就其飾边特征看来，很象 *Nankinolithus nankinensis* Lu，但从其他特征看来，二者則有很大不同：(1) *Nankinolithus wanyuanensis* 的头部呈規則的半圓形，而 *N. nankinensis* 的头部則略呈方形；(2) *N. wanyuanensis* 的头鞍呈长卵圓形至卵圓形，而 *N. nankinensis* 的头鞍則呈梨形；(3) *N. wanyuanensis* 的頰刺較长，且彼此近于平行，而 *N. nankinensis* 的頰刺較短，且向外延伸；(4) *N. wanyuanensis* 的尾部呈半橢圓形，而 *N. nankinensis* 的尾部則呈三角形。

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## ON THE OCCURRENCE OF *NANKINOLITHUS* FROM THE UPPER ORDOVICIAN IN DABASHAN, N. SICHUAN

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### (Summary)

The specimens (part and counterpart) which are described here as *Nankinolithus wanyuanensis* Cheng et Jian (sp. nov.) were collected by the students of the Geological Department of Northwestern University from the Upper Ordovician in the middle part of Dabashan, in 1958. The rock from which the specimens were derived is a yellowish-green shale, about 1 m in thickness. The shale is underlain by a pinkish sun-crack limestone, corresponding to the Pagoda limestone of Hanzhong and the Lower Yangzi Valley, and is overlain by a sequence of black shale, siliceous shale and pinkish shale, ca. 20 m in thickness. From the shales above mentioned there have been found *Glyptograptus* sp., *Monograptus* sp. and *Rastrites* sp. All of them are general fossils of the Lower Silurian.

The generic name *Nankinolithus* was created by Lu in 1956. The genotype, *Nankinolithus nankinensis* Lu, was found from the Tangtou formation (Upper Ordovician) at Tangshan near Nanjing. This hitherto monotypic genus has been later found from the Upper Ordovician of W. Zhejiang, N. Guizhou, S. Sichuan and many other regions. It appears evident that the geological age of the yellowish-green shale in Dabashan belongs to the Upper Ordovician.

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### Family Trinucleidae Hawle et Corde, 1847

#### Genus *Nankinolithus* Lu, 1956

#### *Nankinolithus wanyuanensis* Cheng et Jian (sp. nov.)

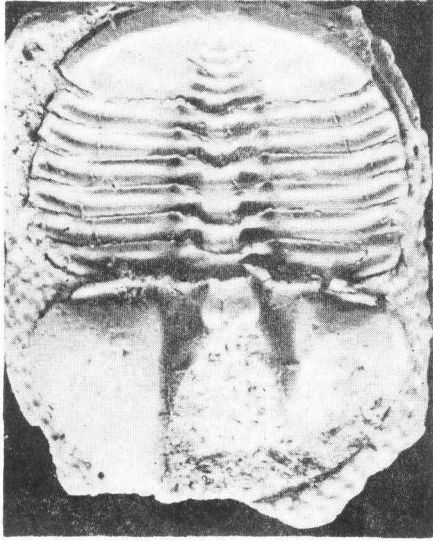
(Figs. 1—2)

**Description:** Exoskeleton subovoid, about 21 mm long and 17 mm wide. Cephalon semi-circular, 12 mm in length, 17 mm in width, a little more than one-half the total length of the shield. Glabella oblong-ovoid, with two pairs of very short and shallow glabellar furrows. Occipital ring narrow; occipital furrow shallow and broad. Lateral eyes and ocular ridges absent. Posterior marginal furrow deepening laterally and ending in a deep pit until reached the fringe. Fringe narrow in front, widening postero-laterally, divided into a convex cheek roll and a concave brim, externally the brim with three concentric rows of pits deeply sunk in radial sulci; internally the cheek roll with pits arranged radially in front and irregularly in lateral portion. Genal spines with a length of about 15 mm extending directly backward, parallel with each other, about three-fourths the length of the shield.

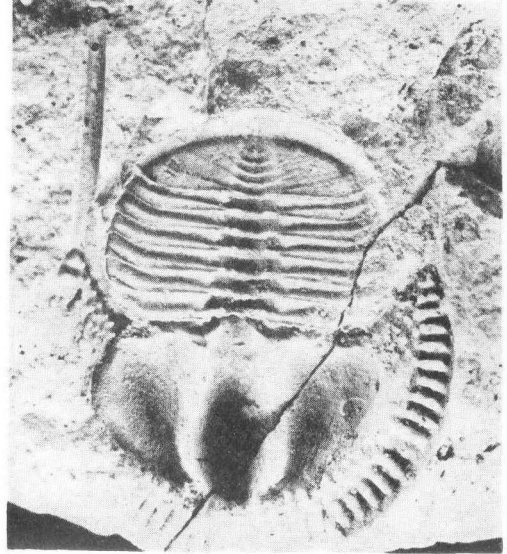
Thorax composed of six segments, axis narrow, less than one-fifth the width of the thorax, convex, gradually tapering backward. Pleural segment flat, horizontal in inner portion, bending slightly backward at the fulcrum about two-fifths its length. First pleurae with rounded antero-lateral edge and a pointed terminal end. The ends of second to sixth pleurae are truncated. Pleural furrows wide and shallow, slightly diagonal.

Pygidium semi-elliptical, transverse, with a broad and sharply inclined downward marginal border, which is ornamented by fine concentric lines. Axis convex, narrow, conical, composed of five complete rings and a rounded terminal piece. Pleural regions flat, subtriangular, marked with three pairs of shallow and broad pleural furrows.

**Discussion:** In regard to the fringe feature, this new species recalls *Nankinolithus nankinensis* Lu, but differs in many other features: (1) in *Nankinolithus wanyuanensis*, the cephalon is regularly semi-circular, but in *N. nankinensis*, the cephalon is slightly quadratic; (2) the glabella of *N. wanyuanensis* is oblong-ovoid, and the glabella of *N. nankinensis* is pear-shaped; (3) the genal spines of *N. wanyuanensis* are longer and nearly parallel, and those of *N. nankinensis* are shorter and stretched outward; (4) the pygidium of *N. wanyuanensis* is semi-elliptical, and that of *N. nankinensis* is triangular.



1



2

图 1—2. *Nankinolithus wanyuanensis* Cheng et Jian sp. nov. 四川省,万源县,中巴乡,晚奥陶世。图 1,内模  $\times 4$ ,标本编号: WO001 (正型标本)。图 2,外模,  $\times 3$ 。标本编号: WO002 (正型标本的付本)。标本保存于西安西北大学地质系。图版照相系由中国科学院地质古生物研究所庞茂芳同志所摄。

Fig. 1—2. *Nankinolithus wanyuanensis* Cheng et Jian sp. nov. Upper Ordovician, Zhongba-xiang of Wanyuan xian, N. Sichuan. Fig. 1, Internal mould, enlarged ( $\times 4$ ), Cat. No.: WO001 (Holotype). Fig. 2, External mould, enlarged ( $\times 3$ ), Cat.No.: WO002 (Counterpart of Holotype).

The specimens are preserved in Department of Geology, North-western University.