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三叶虫纲的一个新科—同心盾壳虫科 (*Tongxinaspidae*)

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1964年,宋长起、周志强等在宁夏回族自治区同心县米钵山测制奥陶系剖面时,于天景山石灰岩顶部之黑灰色薄层灰岩中采获了丰富的三叶虫化石。这个动物群除了本文描述的*Tongxinaspis*外,还包括*Ampyx*, *Glaphurina*, *Gog*, *Hammatoconemis*, *Jiuxinella*, *Lonchodomas*, *Mendolaspis*, *Phorocephala*, *Placoparina*等属,其时代是早奥陶世阿伦尼克期末期。

*Tongxinaspis*是兼有Harpina亚目和Trinucleina亚目特征而又不同于它们的一类三叶虫,笔者以它为基础新建*Tongxinaspidae*科。

本文所附照片为陈英凤摄制,插图是曹瑄铎所绘。

亚目未定 Suborder Uncertain

同心盾壳虫科(新科) *Tongxinaspidae* Zhou fam. nov.

定义:头鞍呈梨形,具眼粒和中瘤。三对侧头鞍沟呈坑状,不与背沟连通。叶状体小。颊部具眼脊和侧眼粒。颊脊细弱。饰边宽阔,明显地分异为颊边缘和内边缘。外边缘脊窄。引长板有中等长度。下叶板具梁脊。颊部、饰边及引长板不规则地分布着密集的小陷孔。小陷孔之间有不规则的网状脊线。胸、尾情况不明。

讨论:本科目前仅包含*Tongxinaspis*一属。就其梨形的头鞍,眼粒和中瘤的发育,侧头鞍沟呈孤立的圆坑形而言,它显然有些接近Trinucleidae。科在Trinucleidae科内,饰边明显分异为凸起的颊边缘和平凹的内边缘者有Tretaspinae、Reedolithinae⁽¹⁾和Nankinolithinae⁽²⁾三个亚科,但它们的内边缘从未有如*Tongxinaspidae*那样宽阔者:其内边缘、颊边缘的界线也大不如*Tongxinaspidae*分明;再者饰边上的小陷孔也不如*Tongxinaspidae*那般细小、繁多、排列不规则,而是有规律地分布在作辐射状排列的陷坑内。Hanchungolithinae⁽³⁾亚科是Trinucleidae科最原始的类型,它饰边上的小陷孔虽作不规则排列,但其下叶板无梁脊,上叶板没有明显分异为颊边缘、内边缘。由上述可见,Trinucleidae和*Tongxinaspidae*这两个科的饰边构造是有很大差异的。再者,*Tongxinaspidae*的饰边引长板较长,颊刺是由上叶板而非下叶板延伸出来,头鞍沟离背沟有一定距离并在头鞍侧部分出一对假头鞍侧叶,这些也与Trinucleidae科有别。如果我们将*Tongxinaspis*和Harpidae科内颇具代表性的属*Scotoharpes*⁽⁴⁾相比较,我们就不难发现*Tongxinaspis*除引长体略短外,其头部轮廓、饰边结构及装饰与Harpidae科是一致的。但是,Harpidae的所有属种头鞍都毫无例外地向前收缩,缺乏眼粒和中瘤,头鞍沟不呈坑状且与背沟相通,叶状体大,侧眼粒位于头鞍前侧方,眼脊平伸,又与*Tongxinaspidae*科迥然不同。*Tongxinaspidae*科究竟归入Harpina亚目或Trinucleina亚目之中,笔者尚在犹豫之中。笔者寄希望于将来*Tongxinaspis*胸部、尾甲标本的发现。因为这两个亚目的胸节数目、尾部形态是相当不同的。

时代:早奥陶世阿伦尼克期。

同心盾壳虫属(新属) *Tongxinaspis* Zhou gen. nov.

特征:同科的定义。

模式种: *Tongxinaspis polymorpha* Zhou gen. et sp. nov.

分布时代：中国宁夏，早奥陶世阿伦尼克期。

多形同心盾壳虫(新属、新种) *Tongxinaspis polymorpha* Zhou gen. et sp. nov.

(见图版图 1—5, 标本保存在西安地质矿产研究所)

材料：保存状况优劣不一的头部 5 枚。

描述：头部(除引长板外)呈略拉长的半圆形。头鞍沿纵中线强烈隆起，在中央略靠前处有一显著突起的眼粒，在颈沟前不远处还有一中瘤。头鞍向前扩大呈梨形，前端窄圆或圆润。三对深坑状的侧头鞍沟不与背沟相沟通，在头鞍侧部分离出一对假头鞍侧叶，前一对头鞍沟与眼粒在同一水平线上，中间和后一对几乎相连，位于头鞍后半部。颈环窄(纵向)而凸起。叶状体小，呈豆荚状，紧靠头鞍后侧角。背沟窄而清晰。颊部凸起，后侧迅速向外下方弯曲。强壮的眼脊由前一对头鞍沟外侧向后侧方斜伸，与大而突出的侧眼粒相连。侧眼粒位于前两对头鞍沟之间的相应部位。颊脊比较细弱，由侧眼粒斜伸至后边缘沟的外端。颊边缘缓凸，向内边缘下弯；它与颊部有明显的界线；它在鞍前比较宽，内缘紧邻头鞍，向后逐渐变窄。内边缘相当宽，略微下凹，外边缘脊窄而凸起，它们向后延伸成引长板。引长板向后延伸的距离约为头部中轴线长度的 2/3，前半部呈三角形，后半部尖缩为一个轻微向内弯曲的细刺。后边缘沟平直。后边缘和引长板的内边缘脊突起。在颊部、颊边缘、内边缘及内边缘的引长部分不规则地分布着无数圆形的小陷孔。这些陷孔排列密集，由颊部向外至颊边缘，内边缘孔径略有增大的趋势。小陷孔之间为低凸的网状脊线。此种脊线由略呈辐射状的扭曲形脊线和与此大致垂直的横脊组成，基本上呈不规则状。从颊边缘凸起、内边缘平凹、二者有十分明显的界线推测，下叶板的梁脊是存在的。当标本的外壳剥离后，显示出下叶板的背面，其上有无数中空状的乳头状小突起与上叶板的小陷孔相对应。

产地和层位：宁夏回族自治区同心县米钵山；下奥陶统天景山灰岩顶部。

登记号：Tr166, Tr167, Tr301, Tr302。

参 考 文 献

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TONGXINASPIDIDAE, A NEW TRILOBITE FAMILY

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Abstract

Tongxinaspis a new trilobite genus is characterized by unusual cephalic structures. Its glabella and glabellar furrows are similar to those of suborder Trinucleina but its fringe is close to that of suborder Harpina. A new family, Tongxinaspidae, is thus erected on the basis of *Tongxinaspis*. The specimens here described were collected from the top of Tianjingshan Limestone in Mt. Miboshan, Tongxin, Ningxia. A rich trilobite fauna associated with them indicates a Late Arenig age.

The characteristic features of the new family and new genus are as follow:

Suborder Uncertain

Family Tongxinaspididae Zhou fam. nov.

Glabella pearshaped, with eye tubercle and medium node; three pairs of pitted lateral glabellar furrows not connectected with axial furrows; alae small, lateral eye tubercles and eye ridges located on genae; genal ridges slender; fringe broad, divided strikingly into genal roll and brim; external rim narrow; fringe moderately prolonged lower lamellae of fringe bearing girder; small pits closely and irregularly distributed on genae, fringe and prolongations; irregular and reticular ridges between pits. The thorax and pygidium are not known.

Remarks: This family includes so far only *Tongxinaspis*. The pearshaped glabella, the presence of eye tubercle and median node, and the pitted glabellar furrows somewhat resemble those of family Trinucleidae. Among the Trinucleidae, subfamily Tretaspidinae, Reedolithinae and Nankinolithinae have fringe composed of convex genae roll and plano-concave brim. They are distinguished from Tongxinaspididae by narrower brim, less amount but more regular arrangement of pits. Subfamily Hanchungolithinae is similar to the present family in the irregular arrangement of pits but the former differs in lack of girder and non-differentiation of the fringe into genal roll and brim. Thus Tongxinaspididae possesses fringe structure quite different from Trinucleidae. Moreover, in Tongxinaspididae the prolongations are longer, the genal spines extended from the upper lamella instead of lower lamella; the glabella has a pair of false lateral glabellar lobes delimited by lateral glabellar furrows—these features also differ from those of Trinucleidae.

Evidently the genus *Tongxinaspis* agrees with Harpidae in structures and ornaments of fringe and profile of cephalon except having shorter prolongations. However, Harpidae differs definitely from Tongxinaspididae in the following features: 1) the glabella tapering forward without exception, 2) the absence of eye tubercle and median node, 3) the glabellar furrows connected with axial furrows but not appearing as pits, 4) the alae large, 5) the lateral eye tubercles located antero-laterally on glabella, 6) eye ridges horizontal.

Whether the new family Tongxinaspididae should blong to the suborder Harpina or Trinucleina can be settled only in the future when the thorax and pygidium of *Tongxinaspis* are found.

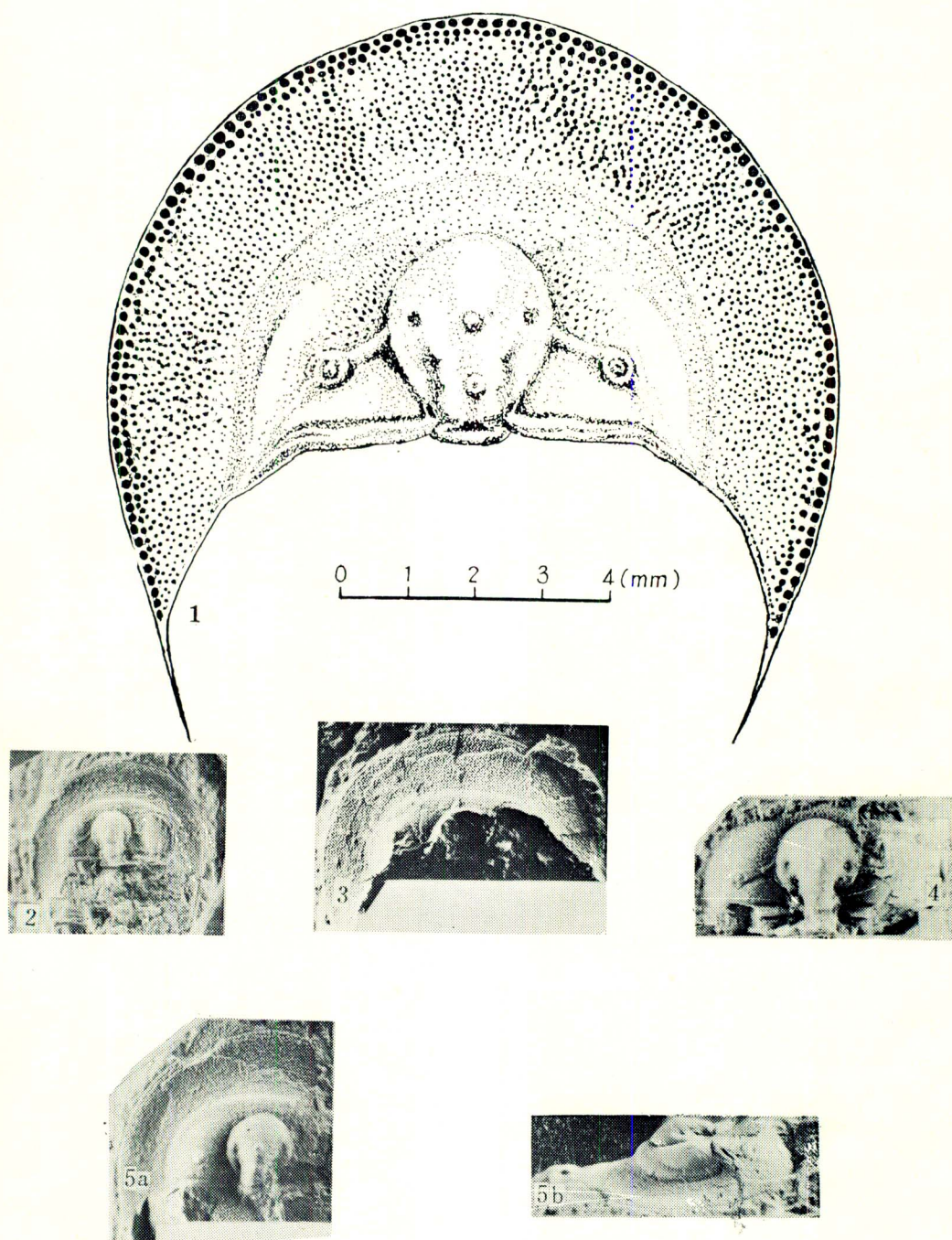
Occurrence: Arenig Age, Early Ordovician Epoch.

Genus *Tongxinaspis* Zhou gen. nov.

Diagnosis same as characters of family.

Type species: *Tongxinaspis polymorpha* Zhou gen. et sp. nov.

Geological and Geographical Distributions: Arenig, Early Ordovician; Ningxia, China.



照片 1 多形同心盾壳虫(*Tongxinaspis Polymorpha*) 头部再造图

照片 2—5 多形同心盾壳虫 (*Tongxinaspis Polymorpha*)

照片 2 完整头部正视, $\times 3$, 副模标本, 登记号码: Tr-167

照片 3 不完整头部正视, $\times 4$, 登记号码: Tr-301

照片 4 不完整头部正视, $\times 4$, 登记号码: Tr-302

照片 5a-b 不完整头部正、侧视, $\times 4$, 正模标本, 登记号码: Tr-166