

贵州东南部早、中寒武世凯里组 非三叶虫节肢动物

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内 容 提 要

记述贵州台江县革东镇八郎村早、中寒武世凯里组中、上部非三叶虫节肢动物 2 属 4 种, 其中 3 新种 (*Canadaspis kailiensis* sp. nov., *Chuandianella? linguiformis* sp. nov., *Chuandianella? subovata* sp. nov.) 和 1 比较种。非三叶虫节肢动物(金臂虫除外)在我国中寒武统尚属首次报道, 它的发现提供了有关地质发展史上早期节肢动物发生和演化的新资料。

关键词 非三叶虫节肢动物 早、中寒武世 凯里组

贵州东南部台江、丹寨一带早、中寒武世凯里组发现的“凯里动物群”, 是一个多门类化石群, 非三叶虫节肢动物是其中的一部分, 它在我国中寒武世地层内尚属首次发现(金臂虫除外)。尽管目前采集到的这类标本保存欠佳, 只有一些瓣壳的外模和内核, 还没有发现属于它们的软体部分和附肢, 不能与北美著名的布尔吉斯页岩内发现的非三叶虫节肢动物相提并论, 但它的发现提供了有关地质发展史上早期节肢动物发生和演化的新资料。

保存完好的中寒武世非三叶虫节肢动物化石主要产于北美洲(加拿大不列颠哥伦比亚)布尔吉斯页岩和美国犹他州中寒武统内。百余年来已有许多著名的古生物学家(Walcott, 1885, 1912; Resser, 1929; Ulrich and Bassler, 1931; Rolfe, 1962; Simonetta and Delle Cave, 1980; Wittington, 1971, 1975, 1980, 1981, Briggs, 1976, 1977, 1978, 1983, Robison and Richards, 1981, Delle Cave and Simonetta, 1991)对其进行了系统的采集和深入的研究, 研究表明, 在缺少软体和附肢的情况下, 很难或不可能正确地确定所研究的节肢动物的高一级的分类位置和它们之间的演化关系, 因为一些形态上十分相似的壳瓣却具有十分不同的分节的软体和附肢(Robison and Richards, 1981)。本文所记述的 *Canadaspis kailiensis* sp. nov., *Chuandianella? linguiformis* sp. nov., *Chuandianella? subovata* sp. nov. 和 *Canadaspis* cf. *ovalis* (Walcott) 产自贵州台江县革东镇八郎村下、中寒武统凯里组中部及上部灰、黄绿色钙质泥岩, 保存了瓣壳的外模和内核, 通常与三叶虫、水母状化石、棘皮动物等共生, 其确切的分类位置还有待今后采集到更多更好的标本和进行深入的研究来解决。

加拿大虫科 Canadaspididae Novozhilov, in Orlov, 1960**加拿大虫属 Genus Canadaspis Novozhilov, in Orlov, 1960****凯里加拿大虫(新种) Canadaspis kailiensis sp. nov.**

(图版 I, 图 1—3)

瓣壳长半椭圆形至长半卵形, 前端截切, 中后腹部略膨大, 壳长 21—22mm, 壳高为 8.1—8.3mm; 铰合线直, 比壳长稍短, 前背角 90° — 92° , 后背角约 135° — 138° ; 活动缘无刺; 闭肌痕隐约可见, 大而圆, 位于壳瓣的前方; 壳瓣具极窄的边缘, 近边缘处的壳面具有数条大致与边缘平行的脊状凸起。

比较 新种与产于北美中寒武统的模式种 *Canadaspis perfecta* (Walcott) (Walcott, 1912, p. 183—184, pl. 31, figs. 1—6) 的主要区别是新种壳瓣窄长, 前端截切, 呈长半椭圆形至长半卵形, 前背角很小, 后背角大, 最大高度在中部略偏后, 具有窄的边缘和近边缘处的脊状凸起, 此外闭肌痕也模糊不清。在具有窄的边缘及不发育的闭肌痕等方面新种与美国犹他州中寒武世早期所产 *Canadaspis cf. perfecta* (Walcott) 十分相似 (Robison and Richards, 1981, p. 4, pl. 1, figs. 1—3), 但新种壳瓣窄长, 前、后背角较小, 壳的最大高度在中部略偏后, 壳面在近腹边缘处有数条脊状凸起。

产地层位 贵州台江县革东镇八郎村; 下、中寒武统凯里组上部。

卵形加拿大虫(比较种) Canadaspis cf. ovalis (Walcott)

(图版 I, 图 4, 5)

材料 不完整的两瓣壳的外模和内核; 登记号: GK1037, GK1038。

瓣壳近卵形, 中后部膨大; 铰合线直, 前背角约 105° — 110° , 后背角约 120° — 125° ; 活动缘无刺; 闭肌痕大, 圆形, 近前缘; 具极窄的边缘; 最大壳长 20.5mm, 壳高 12mm; 壳面光滑, 近后部有一与铰合线近乎垂直的椭圆形凸起。

比较 当前标本与北美中寒武世斯梯芬组所产的 *Canadaspis ovalis* (Walcott, 1912, p. 185, pl. 32, figs. 5, 6) 标本十分相似, 所不同的是后者的前背角较大, 壳最大高度几乎在中部, 此外近后部没有椭圆形凸起。在具有窄的边缘方面, 当前标本与本文描述的 *Canadaspis kailiensis* sp. nov. 有些相似, 但前者具有近卵形的瓣壳, 较大的前背角, 近后部的椭圆形凸起和缺少与边缘大致平行的脊状凸起。

产地层位 贵州台江县革东镇八郎村; 下、中寒武统凯里组中部。

金臂虫目 Bradoriida Raymond, 1935**科未定 Family uncertain****小川滇虫属 Genus Chuandianella Hou et Bergström, 1991**

模式种 *Mononotella ovata* Lee, 1975

特征 具有大的双瓣壳的金臂虫类(?), 最大长度可超过 10mm, 次圆形。铰合缘向上弯曲, 壳面具斑点网纹装饰。边缘很窄, 无边缘沟。

时代分布 中国南方; 早、中(?)寒武世。

舌形小川滇虫(?) (新种) *Chuandianella? linguiformis* sp. nov.

(图版1, 图6, 7)

个体较大的金臂虫(?), 壳瓣舌形, 前端和后端尖圆, 长度 7.8—9mm, 高度 3.8—4.3mm; 无明显的铰合构造; 边缘窄而凸起, 但无清楚的边缘沟; 壳面具与边缘大致平行的脊线。

比较 新种与云南早寒武世筇竹寺期所产的 *Chuandianella ovata* (Lee) (李玉文, 1975, 65—66 页, 图版 2, 图 16, 17; Hou and Bergström, 1991, p. 186, pl. 2, figs. 5, 6) 相比, 两者都具有窄的边缘, 但新种有舌形的壳瓣, 表面具与边缘大致平行的脊线, 而不具有斑点状的网纹装饰; 由于无明显的铰合构造, 置于此属尚有疑问。

产地层位 贵州台江县革东镇八郎村; 下、中寒武统凯里组上部。

次卵形小川滇虫? (新种) *Chuandianella? subovata* sp. nov.

(图版1, 图8, 9)

瓣壳次卵形, 长约 7—8mm, 高约 5—6.2mm; 无明显的铰合构造; 边缘窄而凸起; 壳面具与腹边缘大致平行的脊线, 但缺少斑点状的网纹装饰; 不具边缘沟。

比较 新种由于具有次卵形的瓣壳与 *Chuandianella ovata* (Lee) (李玉文, 1975, 65—66 页, 图版 3, 图 16, 17; Hou and Bergström, 1991, p. 186, pl. 2, figs. 5, 6) 十分相似, 但新种壳面不具有斑点网纹状装饰, 而具有与腹边缘大致平行的脊线, 此外铰合缘构造不明显, 因此将其置于此属内尚有问题。

产地层位 贵州台江县革东镇八郎村; 中、下寒武统凯里组上部。

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PRELIMINARY REPORT ON NON-TRILOBITE ARTHROPODS FROM LOWER—MIDDLE CAMBRIAN KAILI FORMATION OF SOUTHEASTERN GUIZHOU, SOUTH CHINA

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Summary

The carapaces or valves of 2 species of larger bivalve arthropods and 2 species of bradoriids(?)

are described for the first time from the Kaili Formation (Lower—Middle Cambrian) of southeastern Guizhou, South China. The 3 new species are identified as *Canadaspis kailiensis* sp. nov., *Chuandianella? linguiformis* sp. nov., and *Chuandianella? subovata* sp. nov. As a whole the specimens provide new important information concerning the distribution, species diversity and evolution of a poorly known element of the Cambrian fauna.

Family Canadaspididae Novozhilov, in Orlov, 1960

Genus *Canadaspis* Novozhilov, in Orlov, 1960

***Canadaspis kailiensis* sp. nov.**

(Pl. I, figs. 1—3)

Diagnosis Valves elongately semielliptical to semioval in outline, truncated anteriorly, with marked posteromedial expansion, 21—22mm in maximum length and 8.1—8.3mm in maximum height. Hinge line straight, with anterodorsal and posterodorsal angles of 90°—92° and 135°—138°. Free margin lacking spine. Adductor muscle scar circular and large, faintly visible. Valve with narrow border; valve surface near border with several ridges running parallel to the margin.

Comparison The new species differs from the type species of the genus, *Canadaspis perfecta* (Walcott, 1912), mainly in having narrower and longer valve with truncated anterior margin, smaller anterodorsal angle, narrower border and several ridges near the border on the valve surface. In the presence of narrower border and poorly developed adductor muscle scar, the new species is also quite similar to *Canadaspis* cf. *perfecta* (Walcott, 1912) from the early Middle Cambrian of Utah (Robison and Richards, 1981, p. 4, pl. 1, figs. 1—3); however, it can be distinguished from the latter mainly by its narrower and longer valve, smaller anterodorsal and posterodorsal angles and several ridges on the valve surface.

Locality and horizon Balang village, Gedong town, Taijiang County, southeastern Guizhou, South China; upper part of Kaili Formation (early Middle Cambrian).

Bradoriida Raymond, 1935

Family uncertain

Genus *Chuandianella* Hou et Bergström, 1991

***Chuandianella? linguiformis* sp. nov.**

(Pl. I, figs. 6, 7)

Diagnosis A bradoriid? with larger carapace; valve tongue-shaped, acute-rounded anteriorly and posteriorly; 7.8—9.0mm in maximum length and 3.8—4.3mm in maximum height, lacking distinct hinge structure. Border very narrow and convex, without distinct border furrow. Carapace surface with several ridges running roughly parallel to the margin.

Comparison This new species differs from the type species of the genus, *Chuandianella ovata* (Lee, 1975) from the Lower Cambrian Chiungchussu Formation of Yunnan (Lee, 1975, p. 65—66, pl. 3, figs. 16, 17; Hou and Bergström, 1991, p. 186, pl. 2, figs. 5, 6) mainly in the tongue-shaped valve, the presence of several ridges running roughly parallel to the margin on the valve surface, and

the absence of puncto-reticulate structure and a distinct hinge structure. Due to the absence of a distinct hinge structure it is doubtfully assigned to the bradoriid genus *Chuandianella*. Possibly, the new species belongs to *Ribeiria* Sharpe of the family Ribeiridae Kobayashi, 1933.

Locality and horizon Same as the preceding species.

Chuandianella? subovata sp. nov.

(Pl. I, figs. 8, 9)

Diagnosis A bradoriid? with larger carapace; valve subovate, 7—8mm in maximum length, and 5—6.2mm in height, lacking distinct hinge structure. Border narrow and convex; several ridges on the valve surface running roughly parallel to the margin. Border furrow absent.

Comparison In the presence of subovate valve, the new species is quite similar to the type species of the genus, *Chuandianella ovata* from the Lower Cambrian Chiungchussu Formation of Yunnan (Lee, 1975, p. 65—66, pl. 3, figs. 16, 17, Hou and Bergström, 1991, p. 186, pl. 2, figs. 5, 6), but the new species has no puncto-reticulate structure on the valve surface and no distinct hinge structure. Due to the lack of distinct hinge structure it is doubtfully assigned to the bradoriid genus *Chuandianella* Hou et Bergström.

Locality and horizon Same as the preceding species.

图 版 说 明

标本采自贵州省台江县革东镇八郎村下、中寒武统凯里组中部及上部;标本保存在贵州工学院地质系。

图 版 I

1—3. *Canadaspis kaiiensis* sp. nov.

1. 双瓣壳内核, Holotype, $\times 3$; 采集号: GTB-23-2-106, 登记号: GK1511. 2. 双瓣壳外模, $\times 3$; 采集号: GTB-23-1-6, 登记号: GK1512. 3. 双瓣壳内核, $\times 2$; 采集号: GTB-23-1-82, 登记号: GK1513.

4, 5. *Canadaspis* cf. *ovalis* (Walcott)

4. 不完整双瓣壳内核, $\times 3$; 采集号: GTB-17-2-56, 登记号: GK1514. 5. 不完整双瓣壳外模, $\times 3$; 采集号: GTB-17-2-55, 登记号: GK1515.

6, 7. *Chuandianella? linguiformis* sp. nov.

6. 近乎完整的右瓣壳外模, Holotype, $\times 8$; 采集号: GTB-22-3-93, 登记号: GK1039. 7. 近乎完整左瓣壳背侧视, $\times 4$; 采集号: GTB-21-2-94, 登记号: GK1517.

8, 9. *Chuandianella? subovata* sp. nov.

8. 左瓣壳背侧视, Holotype, $\times 8$; 采集号: GTB-22-3-126, 登记号: GK1518. 9. 右瓣壳外模, $\times 6$; 采集号: GTB-22-3-140a, 登记号: GK1519.

