DOI:10.19800/j.cnki.aps.1986.01.003

其生物地层学意义。古生物学报，18 卷 3 期。

余汶，1983：中国扬子区早寒武世最早期软体动物群的研究。科学通报，28 卷。

章森桂，1983：新疆库鲁克塔格早寒武世古杯类。古生物学报，22 卷 1 期。

Cobbold, E. S., 1921: The Cambrian horizon of Comley (Shropshire) and their Brachiopoda, Pteropoda, Gastropoda, etc., -Q. Jl. Geol Soc. London, **76**: 325—386.

Knight, J. B., 1941: Paleozoic gastropod genotypes. -Geol. Soc. Amer. Spec. Paper 32.

————, 1948: Further new Cambrian Bellerophont gastropods. -Smithson. Misc. Coll. **3**(3). (Washington).

———— and Yochelson, E. L., 1960: Monoplacophora. In "Treatise on Invertebrate Paleontology, Pt. I, Mollusca 1" (R. C. Moore ed.). -Geol. Soc. Amer. and Univ. Kansas Press.

Kobayashi, T., 1958: On some Cambrian gastropods from Korea. -Japan. Jour. Geol. Geog. **29**(1—3) 111—118.

Perner, J., 1903: In Barrande, Joachim: Systeme silurien du centre de la Boheme, vol. 4, Gasteropodes. Tome 1 er, Texte (Patellidae et Bellerophontidae), pls. 1—89. Prague.

Pojeta, John, 1980: Molluscan phylogeny. -Tulane Studies in Geology and Paleontology, 16: 55—80.

Raseti, Franco, 1954: Internal shell structures in the Middle Cambrian gastropod *Scenella* and the problematic genus *Stenthecoides*. -Jour. Paleont., **28**: 59—66.

Runnegar, B., 1981: Muscle scars, shell form and torsion in Cambrian and Ordovician univalved molluscs. -Lethaia., **14**: 313—322.

Runnegar, B., and Jell Peter A., 1976: Australian Middle Cambrian molluscs and their bearing on early molluscan evolution. -Alcheringa **1**: 109—138.

Troedsson, G. T., 1937: On the Cambro-Ordovician Faunas of Western Qurugtagh, Eastern Tienshan. -Geol. Surv. China, Palaeont. New Ser. B, no. 2.

Walcott, C. D., 1913: The Cambrian faunas of China. In Research in China. vol. 3, Publication of the Carnegie Institute 54.

Yochelson, Ellis L., 1979: Early radiation of Molusca and mollusc-like group. In House, M. R. (ed.): The origin of Major Invertebrate Group., 328—358. Systematics Association Special Volume 12. Academic Press London and New York.

Миссаржевский В. В., 1981. Новое Родовое Название для гастропод.-Палеонтол. Ж., 4:123.

Розанов А. Ю., Миссаржевский В. В., 1966; Биостратиграфия и фауна Нижних горизонтов Кембрия. -Тр. Геол. ин-та АН СССР. Вып. 148.

Розанов А. Ю. и др., 1969: Томмотский ярус и проблема нижней границы кембрия.-Тр. Геол. ин-та АН СССР. М., т. 206.

Старобогатов Я. И., 1970: К систематике раннепалеозойских Monoplacophora.- Палеотол. Ж. 3:6—17.

[1983年 1 月 6 日收到]

LOWER CAMBRIAN UNIVALVED MOLLUSCS FROM KURUKTAG, XINJIANG

Yu Wen

(Nanjing Institute of Geology and Palaeontology, Academia Sinica)

Abstract

The Lower Cambrian univalved molluses described in the present paper were collected in 1977—1978 by the geological parties from the base of the Xidashan Formation around Xidashan, Kuruktag, Xinjiang. The material is generally well-preserved and includes three species ascribed to three genera, in which one genus and three species are new, namely, ***Helcionella xinjiangensis*** sp. nov., ***Eocyrtolites radiatus*** gen. et sp. nov., and ***Cyrtodiscus? kuruktagensis*** sp. nov..

Among them, the genus *Helcionella* is a common form in the Cambrian in many parts of the world, and it also has been reported from the Cambrian formations of the North China Province and from the Huangshandong Member of the Lower Cambrian Tongying Formation of the Yangtze Province in China.

Eocyrtolites gen. nov. which first appeared at the basal part of the Xidashan Formation is characterized by the small, cyrtoconic shell, the protruded and slightly curved apex, the widely flattened dorsal side, the surface ornamented with radially granular ridges and the elliptical aperture. Judging from these features, the new genus looks like the helcionellids in the cyrtoconic shell, the protruded apex and the general form of the aperture, but differs from all other genera of this family in the widely flattened dorsal side and the radially granular ridges. It is similar to the genus *Coreospira* Saito (1936) of the Family Coreospiridae Knight (1947) in the widely flattened dorsal side with protruded margin; however, there are several differences between them: 1. The shell is cyrtoconic in the new genus, but planispiral in *Coreospira;* 2. The surface is ornamented with coarse, radially granular ridges in the former, but with comarginal rugae in the latter; and 3. The aperture is subelliptical-shaped in *Eocyrtolites* gen. nov., but oblong in *Coreospira*. From the above comparisons, this genus may be temporarily placed in Family Helcionellidae. The genus *Cyrtodiscus* is widely distributed in the Ordovician Formations of North America, Europe and Asia. Recently, the discovery of a new form occurring in Lower Cambrian is very important in the study of evolution between the family Cyrtolitidae and its relational families and genera. This assemblage occurs in association with the stenothecoids *Bagenovia* sp. *Stenothecoides* sp., the trilobites *Metaredlichioides rectangularis* Zhu et Lin, *Chenkouia xinjiangensis* Zhu et Lin, and the archaeocyathids *Aldanocyathus* cf. *belvederi* (Rozanov), *Coscinocyathus xinjiangensis* Zhang, etc.. Based on these fossils, the Xidashan Formation should belong to middle Early Cambrian in age, which is equivalent to the middle Tsanglanpu Stage.

Description of new genus and species

Family Helcionellidae Wenz, 1938

Genus *Helcionella Grabau* et Shimer, 1909

Helcionella xinjiangensis sp. nov.

(Pl. I, figs. 1—5)

Description Shell of medium size, cyrtoconic. Apex sharply pointed and moderately curved (Pl. I, fig. 5), generally broken off, leaving a smooth slightly convex septa (as shown in Pl. I, figs. 1—3). Anterior profile concave, especially near the upper part. Dorsal side narrowly arched. Lateral side rather compressed, gradually becoming somewhat flattened near the apertural margin. Aperture more or less elliptical in form; apertural margin slightly expanded.

Surface ornamentation consisting of comarginal rugae, radial threads and growth lines. Comarginal rugae coarse with 16 of them in complete specimens and 10—12 in incomplete ones; Apex bluntly rounded separated by deeply concave depressions. Radial lines numerous and fine, crossed by fine growth lines to form a cancellated surface, as shown in Plate 1, figs. 3—4. Muscle scars unknown.

Comparison This species is closely related to *Helcionella atdabanica* (Missarzhevsky) (Rozanov and Missarzhevsky, 1966, p. 100, Pl. IX, fig. 15) in lateral view, but differs from the latter in the narrower dorsal side, the more curved apex, the more numerous comarginal rugae and the finer reticulate sculptures. In some aspects, this form also is similar to *Helcionella savitazki* (Missarzhevsky) (Rozanov et al. 1969, p. 149, Pl. IV. figs. 10—11), but differs in the higher shell, the narrower dorsal side, the finer and numerous comarginal rugae and the aperture which is elliptical in form.

Genus *Eocyrtolites* gen. nov.

Type species *Eocyrtolites radiatus* gen. et sp. nov.

Diagnosis Shell medium in size, cyrtoconic; apex protruded and slightly curved. Dorsal side widely flattened and with protruding lateral margins. Surface ornamented with

radially granular ridges and growth lines. Aperture subelliptical.

Discussion *Eocyrtolites* gen. nov. somewhat resembles *Helcionella* Grabau et Shimer, 1909 in the general form of the shell, but differs from the latter in the widely flattened dorsal side, the presence of protruding dorso-lateral margins and radially granular ridges and the absence of comarginal rugae. In dorsal view, this genus is closely related to *Coreospira* Saito 1936, but differs from the latter in the cyrtoconic shell, the slightly curved apex, the rapidly expanded aperture and the presence of radially granular ridges.

Eocyrtolites radiatus gen. et sp. nov.

(Pl. I, figs. 6—12)

Description Shell medium in size, cyrtoconic, increasing rapidly in size toward the aperture. Apex bluntly rounded, overhanging but not touching the anterior margin. Ornamentation on the dorsal side not preserved; lateral side marked by eight unequally spaced radial, granular ridges which are slightly curved from apex to the apertural margin and crossed by fine growth lines, and separated by broadly concave depressions. Anteriorly radial ridges fine and acute-topped; posterior ridges, especially the dorso-lateral ridge, large and prominent. Dorsal side widely flattened or somewhat concave, divided by a finely spiral ridge into two equivalent portions (Pl. I, figs. 10—12), with each portion appearing to be subdivided by three transverse lines into four depressions. Lateral side broadly rounded and gradually sloping toward the apertural margin. Aperture enclosed by matrix but still observable in the elliptical form.

Family Cyrtolitidae S. A. Miller, 1889

Genus *Cyrtodiscus* Perner, 1903

Cyrtodiscus? kuruktagensis sp. nov.

(Pl. I, figs. 13—16)

Description Shell small in size, advolute, planispiral. Whorls three in number, increasing gradually and regularly in the first two whorls and rapidly in the last one, especially near the aperture. Dorsal side of the internal mould narrowly rounded. Lateral side gently rounded. Umbilicus narrow, less than one-fourth the diametar of the shell, with all the inner whorls exposed. Aperture large, elliptical in shape. Apertural margin expanded and slightly reflected. Sinus indistinct due to the ill-preserved left lip. Surface ornamentation poorly preserved, except a few reticulations formed by fine spiral threads and growth lines near the right side of aperture.

Remarks The generic position of this species is uncertain. Its general form of the shell and spiral threads suggest an affinity to the genus *Cyrtodiscus*. According to the original diagnosis, this genus has a shallow V-shaped sinus in the anterior lip.

In general outline, this species is similar to the type species of *Cyrtodiscus*, i.e., *Oxydiscus* (*Cyrtodiscus*) procer Perner form the Ordovician of Bohemia, Czechoslovakia, but differs in the narrower umbilicus, the smaller size and the narrowly rounded instead of acute dorsum.