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## JINKENITES—A STRANGE FOSSIL FROM EARLIEST CAMBRIAN IN W. HUBEI

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### Summary

A strange fossil described and illustrated in the present paper was collected by the writer in 1978 from the Huangshandong Member of the Lower Cambrian Tongying Formation in western Hubei. The material was preserved in greyish brown phosphoritic dolomites in association with elements of the Yangtze Micromolluscan Fauna, such as *Tchangichiton notabilis* Yu and *Sinuconus clypeus* Yu of Class Polyplacophora; *Yangtzeomerisma rarum* Yu and *Y. cancellatum* Yu of Class Merismoconchia; *Yangtzeconus priscus* Yu, *Huangshandongoconus pileus* Yu, *Obiuoconus paucicostatus* Yu, *O. rostroptutea* (Qian) and *Spatuloconus rudis* Yu of Class Monoplacophora; *Bemella simplex* Yu, *Latouchella cf. memorabilis* Missarzhevsky, *L. sanxiaensis* Yu and *L. lauta* Yu of Class uncertain; *Archaeospira ornata* Yu, *A. imbricata* Yu and *Cambrospira sinensis* Yu of Class Gastropoda; *Heraultipegma yunnanense* He et Yang of Class Rostroconchia; hyolithids and some other uncertain skeletal fossils. Although the systematic position of this peculiar fossil is unknown at present, it is inferred that this genus may be one of the typical primitive animal groups based on the characters of the shell and the special spines. The shell is bilaterally symmetrical, elliptical in apical view; the dorsal side is roundly convex with three different forms of dorsal spines and several pairs of marginal spines on

the anterior margin. Judged from the general morphological characters of the bilaterally symmetrical shell, these lower animals, generally speaking, have adapted themselves readily to different circumstances, and reduced resistance to any directional movement necessary for varied physiological activities. As to the function of the shell's characteristics, the narrowly rounded side may serve as the anterior. Such a model of the body helps these animals go on with their benthonic creeping or swimming life. On the other hand, the dorsal spines are different from each other in shape, size, mode of arrangement and in number; especially, the end of the hook-shaped spines is generally curved outward, while the geniculate spines are oblique outward, and curved posteriorly all of a sudden. These structures of mechanism also provide us with the evidence that the narrowly rounded side serves as the anterior, while the opposite end as the posterior.

It is of particular interest that this genus is somewhat similar to Phylum Mollusca, especially to the tryblidiids of Class Monoplacophora, in some morphological characters, such as: 1) the bilateral symmetry of the shell, 2) the outline elliptical in apical view and cap-shaped in lateral view and 3) the dorsal side generally roundly convex. After careful study, it has been found that since this genus is strikingly different from

monoplacopharans, may be it belongs to another interesting group of skeletal fossils. The reasons for this are: 1) in the former, there are many pairs of marginal spines on the anterior margin, while in monoplacophorans, no marginal spines can be seen; and 2) in this genus, the sculptures are different from each other in different areas, not only in shape and number, but also in the mode of arrangement, whereas in monoplacophorans, they are identical with each other in the same type and shape. Judged from the different forms of dorsal sculptures, this genus is comparatively similar to such uncertain shelly fossils as *Lepidites* Zhong, 1977 emend. Yu, 1987 and *Xiadongoconus* Yu, 1979 from the same horizon in the Yangtze Region of China, but differs from the latter two genera in the presence of marginal spines on the anterior margin. In addition, this new genus also differs from brachiopods and other skeletal fossils in the peculiar type of the shell. According to the above comparison, this genus is entirely different from all the classes of Phylum Mollusca, possibly representing another interesting group of skeletal fossils. It is impossible to determine the exact taxonomic position of this genus until more materials are available.

### Description of new family, genus and species

#### Phylum, Class and Order incertae sedis

#### Family *Jinkenitidae* fam. nov.

**Diagnosis:** Shell very small, cap- or spoon-shaped, bilaterally symmetrical, with several marginal spines; dorsum with several dorsal spines in different forms.

#### Genus *Jinkenites* gen. nov.

**Type species:** *Jinkenites zhaoi* sp. nov. from Huangshandong Member of Lower Cambrian Tongying Formation, Huangshandong Section of Yichang, W. Hubei.

**Diagnosis:** Shell very small, bilaterally symmetrical, elliptical in apical view. Anterior margin of the shell with several pairs of marginal spines. Dorsal side roundly convex, with three

different forms of dorsal spines, i.e. needle-like spines, hook-shaped spines and geniculate spines.

**Etymology:** Genus and species named in honor of the late Professor Zhao Jin-ke of Nanjing Institute of Geology and Palaeontology, Academia Sinica.

**Discussion:** In the bilaterally symmetrical shell, the elliptical outline in apical view and the roundly convex dorsal side, this genus bears some resemblance to the genera of Family Tryblidiidae Pilsbry in Zittel-Eastman, 1899 under Class Monoplacophora Wenz in Knight, 1952, especially to *Tryblidium* Lindström, 1880 from the Ordovician? to Middle Silurian of North America and Europe. But it can be easily distinguished from the latter by the presence of marginal spines and the three different forms of dorsal spines on the dorsal side. Judged from the different forms of dorsal spines, this genus is comparatively similar to such uncertain genera as *Lepidites* Zhong, 1977 emend. Yu 1987 and *Xiadongoconus* Yu, 1979 from the same horizon of the Yangtze Region, but its very obvious differences seem to indicate that there is no any relationship between them. It differs from *Lepidites* in having several pairs of marginal spines, and from *Xiadongoconus* in bearing three different forms of dorsal spines with several pairs of marginal spines.

#### *Jinkenites zhaoi* sp. nov.

(Pls. I, II)

**Diagnosis:** Shell very small, bilaterally symmetrical, elliptical in apical view. Anterior margin narrowly round, with several pairs of marginal spines. Dorsal side roundly convex with three different types of dorsal spines.

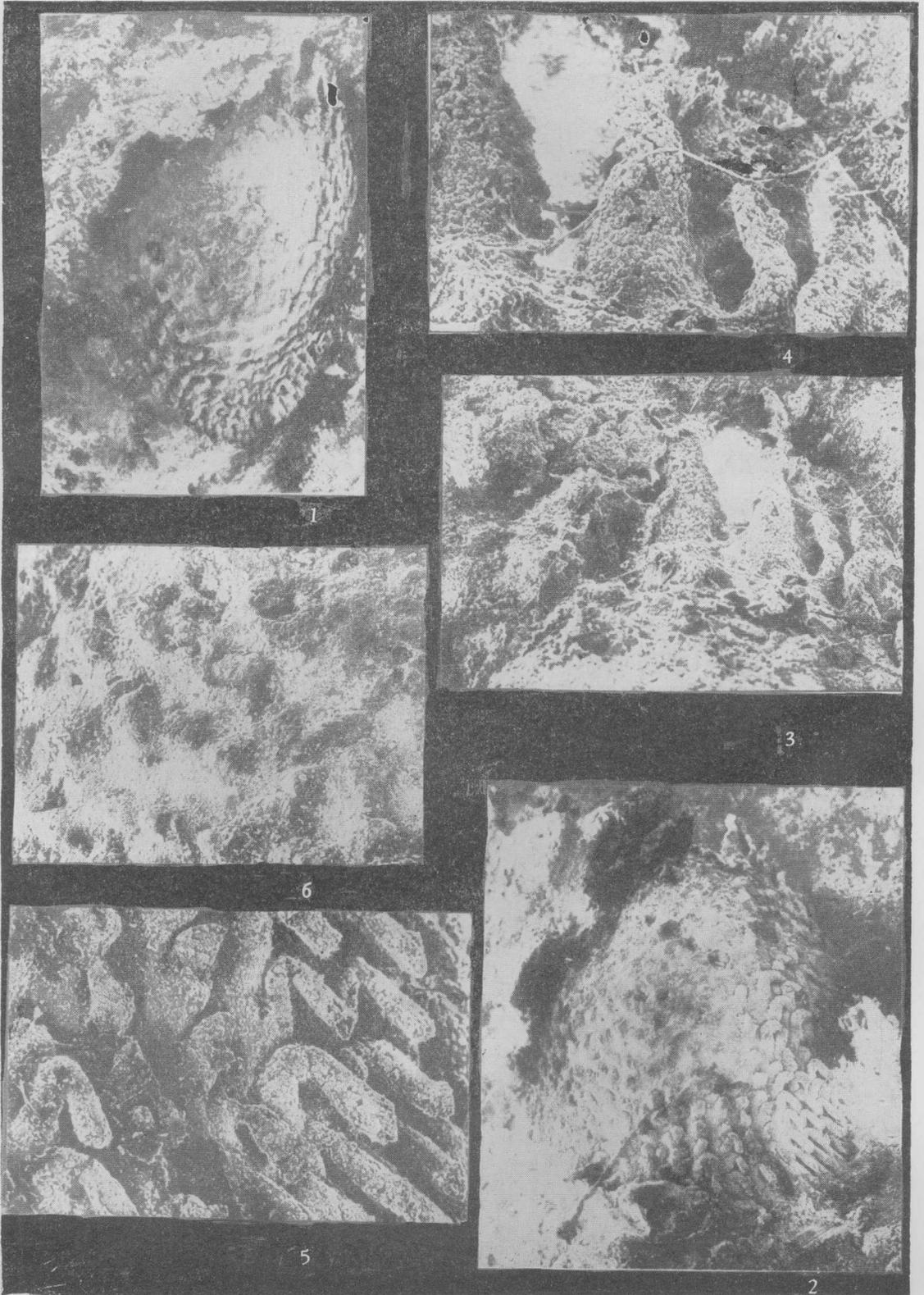
**Description:** Shell very small in size, about 1.254 mm in length, bilaterally symmetrical, elliptical in apical view and cap-shaped in lateral view. Dorsal side roundly convex, with the greatest convexity near central part, gradually sloping to the posterior margin. Anterior margin narrow, with several pairs of marginal spines, among which the central pair is much larger and

longer than the others, with basal part broadly rounded, gradually tapering toward the end and forward to the anterior part; second pair small and thin, with basal part slightly oblique outward, then gradually extending toward the obtuse end and curved inward; third pair slightly stout, morphologically similar to the second pair.

Dorsal side of shell sculptured with three different forms of spines, often well-preserved on the right side and obscure of falling off in the central part and on the left side: 1) needle-like spines not well-preserved, located at 1/4 the length of the shell from anterior margin, with basal part wide, slowly tapering toward the end which is pointed and slightly curved inward; 2) hook-

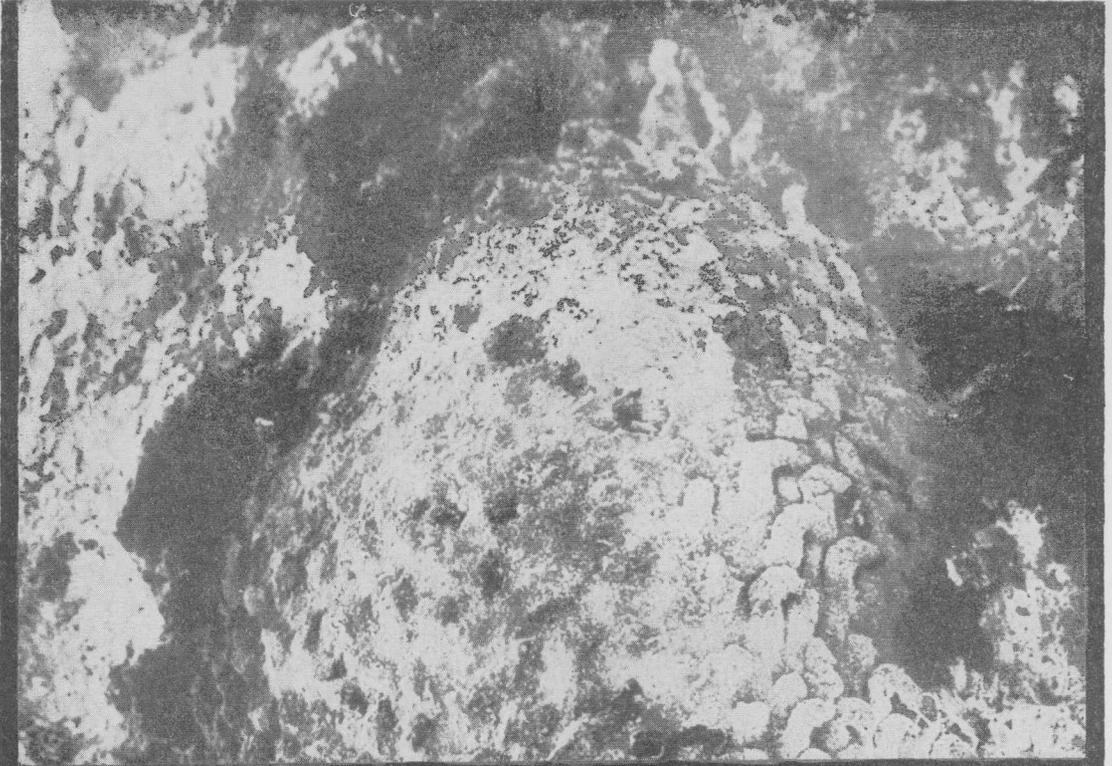
shaped spines mainly distributed in middle part, arranged in about six rows, with basal part stout, gradually tapering toward 2/3 of the height, then gradually oblique outward at an angle of  $55^{\circ}$ — $80^{\circ}$ ; 3) geniculate spines regularly arranged in many rows in the posterior part of the shell, with basal part stout, regularly and slowly extending toward the middle part, suddenly constricted and abruptly curved outward at an angle of  $35^{\circ}$ — $50^{\circ}$ , then gradually widening to the sub-angulate and truncated end and curved posteriorly.

**Horizon and locality:** Huangshandong Member of Lower Cambrian Tongying Formation; Huangshandong, Yichang, W. Hubei.

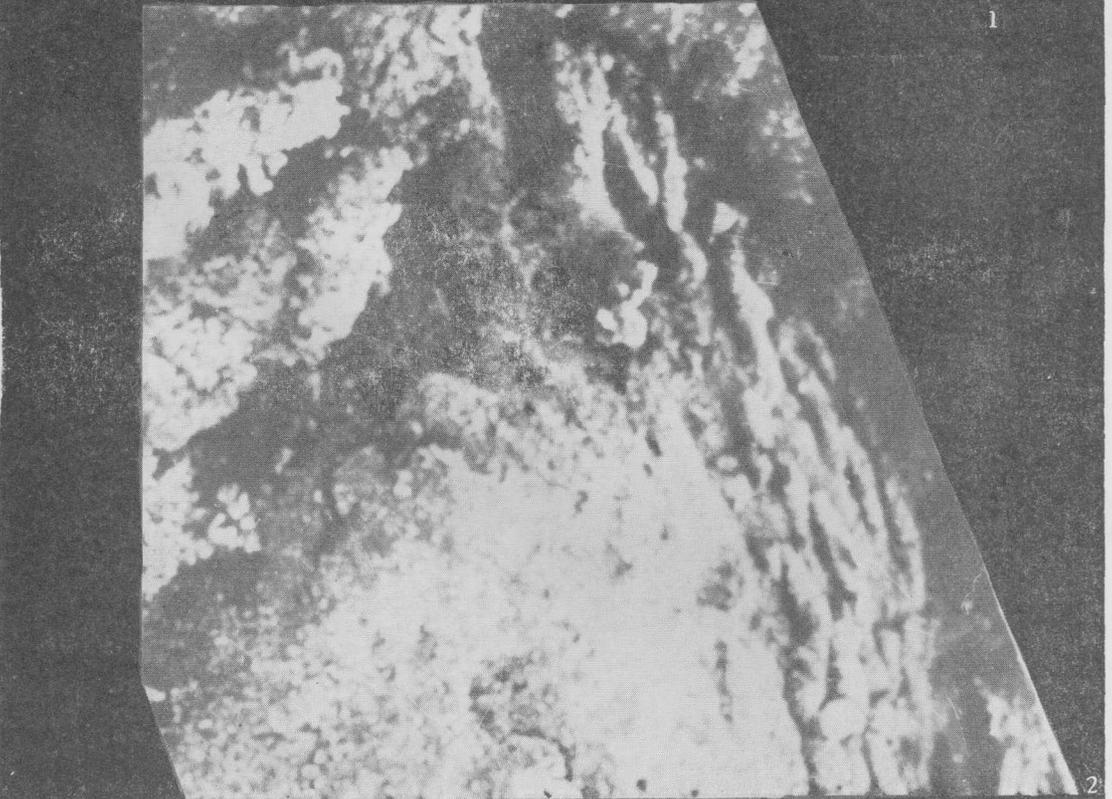


余 汶：鄂西早寒武世最早期一种奇异化石——金科甲 (*Jinkenites*)  
*Jinkenites*—A strange fossil from Earliest Cambrian in W. Hubei

图版 II  
Plate II



1



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