57. An Occurrence of Lopnorites in Hunan, China

By

Teiichi Kobayashi

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Because Ceratopyge is characteristic of the Tremadocian Ceratopyge-limestone of the Baltic region, special attention has been paid on its occurrence in other province. Ceratopyge canadensis Walcott was described from the Upper Cambrian Goodsir formation of British Columbia, but later transferred Ceratopyge into Housia which genus is an ally of Marjumia.

Ceratopyge orientalis Grabau (MS) was established in 1923 for a trilobite from the Upper Cambrian of North China, but was soon distinguished from Ceratopyge, and Mansuyia was instituted for the species in 1924 by Sun. He revised, however, this new genus in 1935 and split the cranidium and pygidium into two genera. A new species, Taishania taianensis Sun, was founded in the cranidium of orientalis together with an entire pygidium, and the pygidium of orientalis str. was combined with the cranidium of (?) Chuangia batia Sun (non Walcott). Thus, Mansuyia is based on the pygidium to which, as pointed out on a previous occasion, that of Kaolishania is the closest, and the cephalon does not bear much weight, because combination of detached cranidium and pygidium is not warranted until a complete carapace is found. When Kaolishania and Mansuyia are found in one bed, it is especially difficult to determine the combination. The third person

2) C. D. Walcott (1925), Cambrian and Ozarkian Trilobites, (Smiths. Misc. Coll. vol. 75.) p. 94.
8) Sun (1934), Op. cit., p. 58, pl. 4, figs. 4 a-c.
to mention Ceratopyge (?) sp. was Weber who listed it from the Ordovician of Central China, but it has not been described yet.

The Cambro-Ordovician collection obtained from Eastern Tien-shan by Norin during Hedîn’s Sino-Swedish Expedition was studied by Troedsson who found three genera, Lopnorites, Diceratopyge and Hysterolenus (?), of the Ceratopygidae in it.

Since the family had formerly been a heterogeneous aggregate, it once confined it to a solid group including Proceratopyge, Ceratopyge Hysterolenus and probably Kogenium. Then, however, there had been some links missing between Kogenium of Eastern Asia and others of the Baltic region which were fortunately filled up by fresh material and the lineage of the family was readily traced by Troedsson as shown below:—

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\begin{array}{ccc}
\text{Ceratopygidae} & \text{Hysteroleninae} & \text{Ceratopyginae} \\
\text{Middle Cambrian} & \text{Kogenium} & \text{Proceratopyge} \\
\text{Upper Cambrian} & \text{Lopnorites} & \text{Diceratopyge} \\
\text{Lower Ordovician} & \text{Hysterolenus} & \text{Ceratopyge} \\
\end{array}
\]

The two parallel lines are recognizable with regard to the morphological development undergone in the geological time. However, the evidences so far obtained are not sufficient to trace the route of migration. The find of Lopnorites in Hunan is reported here, not only as an addition to the meager knowledge of distribution, but also as a palaeontological evidence indicating the presence of the Upper Cambrian in Central and South China.

In marked contrast to the prolific Ordovician faunas, little is yet known of the Cambrian ones, and those so far reported belong exclusively to the Lower or Middle Cambrian. The Upper Cambrian ones are known from the border between China and Indochina in the south, from Chosen in the east and South Manchuria and North China in the north. They are rich and tolerably well known, but none belongs to the Ceratopygidae. Walcott described once Hysterolenus (?) spp. from late Upper Cambrian of Shantung which were represented by pygidia most probably of the Kaolishaninae. Therefore the solitary existence of Lopnorites in Central China is of extraordinary interest.

\textit{Lopnorites} sp.


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Specimen collected by Noda (?) from a dark gray compact calcareous shale at Lan-hsi, Chen-chou-fu, Prov. Hunan is so incomplete that Yabe and Hayasaka left its generic position undetermined. Nevertheless it appears typical of Lopnorites.

Five thoracic segments and pygidium are preserved. Axial ring of thorax broader than half of pleura and elevated above the pleura; pleura transverse, but bent postero-laterally at the extremity and produced into a spine; anterior band of pleura marked behind by pleural furrow, rather prominent, and elevated into a node at the median point.

Pygidium exclusive of lateral spines subtriangular, but its antero-lateral angle is truncated by the spiny first segment; marginal border entire, broad and apparently somewhat concave; axis narrower than one-fifth of pygidium and may be extended into posterior border; the first pleural segment which is quite similar to pleura of thorax, well defined from the rest of pleural lobe, runs across border and produced into an oblique spine; in the rest of pleural segments, pleural furrow runs along the middle of the pleura and divides the pleura into two equal ribs.

Surface of carapace smooth except for distal part of anterior band of pleura where fine irregularly anastomosing lines are observable.

So far as can be seen, this trilobite is almost identical with L. rectispinatus providing a few minor differences in that 1) the node of the pleural ridge is located at a more distal point, 2) pygidium relatively wide, and 3) the first pleural segment bent rectangularly at the antero-lateral angle of the pygidium in rectispinatus. Therefore this may be specifically distinct from the Central Asiatic ones, but the generic separation from Lopnorites is hardly possible.

Finally I wish to thank Prof. H. Yabe of the Geol. Inst., Tohoku Imp. Univ. at Sendai for his courtesy in giving me access to his collection.

湖南省産 Lopnorites（摘要）

小 林 貞 一

湖南省辰州府麗溪産の Lopnorites sp. は、天山地方より最近報告された L. rectispinatus に最も近似する。本化石は南中支唯一の上部寒武統華陰石灰岩のものならず、天山の上部寒武統華陰石灰岩は、印地スラ、朝鮮、滿洲及び北支のフォーナと著しく趣を異にし、天山系の三葉蟲の湖南省に産出する事は當時の古地理考察上極めて重要なる一資料なり。

1) 湖南省辰州府麗溪