114. The Silurian Proetidae (Trilobita) in Eastern Asia

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The family Proetidae is the richest in the Silurian trilobites of Eastern Asia, insofar as the number of its genera totaling 12 is concerned. Now it is represented in Japan by the following four genera with three subgenera of Proetus as follows:

- Proetus subovalis Kobayashi and Hamada,
- Proetus (Gerastos) sugiharensis Kobayashi and Hamada,
- Proetus (Gerastos) subcarinatus Kobayashi and Hamada,
- Proetus (Bohemiproetus) magnicerviculus Kobayashi and Hamada.
- Decoroproetus granulatus Kobayashi and Hamada, all from Mt. Yokokura, Shikoku Island
- Prantlia biloba Kobayashi and Hamada, from Okanari, Shikoku Island.

Příbyl and Vaněk (1978) proposed Gomiites for Decoroproetus granulatus. As discussed in the preceding article, Prantlia biloba is properly referred to Latiproetus. An additional species in a recent paper (Kobayashi and Hamada, 1985a) is Cyphoproetus latiaxis, sp. nov. from Mt. Yokokura. Eight genera and some 30 species of Silurian proetids are reported from Central and South China. These genera and their type-species in brackets to which their age and distribution in China are added are as follows:

- Latiproetus Lu, 1962 (Proetus latilimbatus Grabau, 1925)—Lower and Middle Silurian, Central and South China
- Niuchangella Chang, 1974 (Niuchangella meitanensis Chang, 1974)—Early Lower Silurian, Guizhou
- Luojiashania Chang, 1974 (Luojiashania wuchangensis Chang, 1974)—Middle Silurian, Hubei and Sichuan
- Chuangianoproetus Wu, 1977 (Chuangianoproetus constrictus Wu, 1977)—Middle Silurian, Southwest China and the lower Yangtze region
- Hypaproetus Wu, 1977 (Hypaproetus guizhouensis Wu, 1977)—Lower Silurian, Guizhou
- Oidalaproetus Wu, 1977 (Oidalaproetus convexus Wu, 1977)—Lower Silurian, Guizhou
- Xiushuiproetus Q. Z. Zhang, 1983 (Xiushuiproetus shuangheensis Wu 1977 emend Q. Z. Zhang et Ju, 1983)—Middle Silurian, Jianxi and Sichuan

Because I have discussed already Latiproetus, Chuangianoproetus, Xiushuiproetus and Zeijiangoproetus in the preceding article, the remaining four genera are taken up for discussion.
Oidalaproetus has the glabella and eyes resembling Latiproetus, but the marginal furrow is undeveloped on the cephalon and the test tuberculate. As Wu (1977) noted, it may be allied to Cyphoproetus Kegel, 1927, but the associated pygidium is trapezoidal, instead of semicircular. Its reference to the Cyphoproetinae is provisional.

Hypaproetus (Fig. 1) was compared with Astroproetus by Wu (1977) and Chatterton and Campbell (1981), but it looks to me nearer to Gomiites in view of the glabellar and preglabellar aspects, particularly the latter divided into highly convex marginal rim and low convex frontal limb by a profound furrow. Although Gomiites (Fig. 2) has the glabella rather ovate and its pygidium is much broader than that of Hypaproetus. Both of them belong probably to the Tropidocoryphinae.

Luojiashania on the other hand bears affinities to Cornuproetus in slight divergence of anterior facial sutures, particularly to C. (Lepidoproetus) in the aspects of glabella and eyes. Its pygidium is not very broad, but the axis is short and prominent and the marginal border not well developed. Therefore this genus may be placed in the Cornuproetinae.

Niuchangella was placed in the Proetidae by Yin (1978), but monotypic N. meitanensis Chang, 1974 agrees with Radnoria Owens and Thomas, 1974 in the Cordaniinae Campbell, 1977 of the Brachymetopidae in the wide divergence of the anterior facial sutures and other generic characteristics so nicely that it can be said a Radnoria having the glabella somewhat expanded in posterior. Thus it is an important early Lower Silurian link in Eastern Asia between Llandeiilian species of Newfoundland and Llandoverian-Wenlockian one in Europe (Přibyl and Vaněk, 1981).

Finally, no comment is added here to the following three species of proetids from the eastern Mongolian zone owing to their inadequate description and illustration.
Warburgella wadogouensis Nan, 1980 from Middle Silurian, Heilongjiang, Northeast China
Ungliproetus unguloides (Barrande) and Cyphoproetus sp. by Nan (1976) from Upper Silurian, Inner Mongolia, North China

In summary 4 genera with 3 subgenera of Proetus in 4 subfamilies of the Proetidae are known in the middle and late Silurian fauna of Japan as follows:

Proetinae: Proetus (Proetus, Gerastos, Bohemiproetus)
Cyphoproetinae: Cyphoproetus
Warburgellinae: Latiproetus
Tropidocoryphinae: Gomiites.

Among them Gomiites is a sole endemic genus. All others are widespread through open-seas or geosynclines. Another 4 subfamilies containing 5 genera with 3 subgenera of Latiproetus are recognized in the early and middle Silurian faunas of Central and South China as follows:

Cyphoproetinae: Oidalaproetus
Warburgellinae: Latiproetus (Latiproetus, Chuangianoproetus, Xiushuiiproetus), Prantlia (Zheijiangoproetus)
Cornuproetidae: Luojiashania
Tropidocoryphinae: Hypaproetus.

Most of these genera are products of endemic divergence and indigenous to the epicontinental embayment on the south side of the so-called Sino-Korean massif. An exception is Latiproetus which distributed widely in the Asian-Pacific province in the middle Silurian period. This palaeogeographic conclusion is in support of the remarkable contrast of the Encrinuridae between the Coroncephalinae in the shelf sea of Central and South China (Zhang, 1983) and Japanese Encrinurus in the Chichibu geosyncline along the western margin of Pacific ocean (Kobayashi and Hamada, 1985b).

References


