13. *Advance Reports on the Permian Trilobites of Japan. II*^{*)}

Cordaniinae, nov. and Cheiropyge (Suturikephalion), nov.

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(Communicated March 12, 1982)

It is of great interest to find a highly specialized new subgenus among the Permian trilobites in Japan. It is *Cheiropyge (Suturikephalion)* which is a new brachymetopid having opisthoparian facial suture. In *Brachymetopus* in the Devonian and Carboniferous periods the suture has been known to be closed, although the sutures were rarely found in *Brachymetopus maccoyi spinimarginatus* G. & R. Hahn, 1969, from upper Tournaisian of Spain (Gandl, 1973) and basal Moscovian *Brachymetopus (Brachymetopella) akiyoshiensis* Kobayashi and Hamada, 1980 from Akiyoshi-dai, Japan. Middle Permian *Cheiropyge (Suturikephalion)* reveals high specialization in the triangular cephalon and pygidium, related modification of intramarginal depression, and loss of genal spines on the cephalon and the development of caudal lappet by fusion of the seventh pair of pleural ribs in the pygidium.

Family Brachymetopidae Prantl and Přibyl, 1951

This family is divisible into two subfamilies. One is the Cordaniinae, nov. ranging from Silurian to Lower Carboniferous and the other the Brachymetopinae, Upper Devonian to Upper Permian. The former differs from the latter principally in the possession of open facial sutures whose anterior branches are widely divergent forward. In the latter subfamily the sutures are generally closed, although they recur rarely on the dorsal shield. The anterior branch of such a suture is quite different from those of the Cordaniinae in the gently arcuate course extending forward from the eye.

Subfamily Cordaniinae Kobayashi and Hamada,
subfam. nov.

Brachymetopids with widely divergent anterior facial sutures, rudimentary lateral furrows discernible in anterior to preoccipital furrows; genal spines present; pygidium with entire margin. Silurian-Carboniferous, Eur-America and South Pacific.

^{*)} Studies on Japanese Trilobites and Associated Fossils, XXIV.

This subfamily comprises *Radonia* (Middle Silurian), *Cordania* (Lower Devonian), *Mystrocephalia* (late Lower to Middle Devonian) and *Australosutura* (Lower Carboniferous). The last genus is nearest to *Brachymetopus* not only in dorsal aspects but also in the similar rostrum. It is, however, an off-shoot of the Cordaniinae toward the Brachymetopinae which appeared already in the late Devonian age.

Subfamily Brachymetopinae Prantl and Přibyl, 1951

Genus *Cheiropyge* Diener, 1897

Subgenus *Suturikephalion*, subgen. nov.

Diagnosis:—Cephalon subtrigonal, but genal angles are well rounded; intramarginal depression expanding mesially and narrowing postero-laterally; glabella small, lacking lateral furrows; eyes very large, located far posteriorly; facial suture present. Thorax composed of nine segments. In pygidium axial lobe divided into 15–16 rings; post-axial lappet well developed; pleural ribs in 6 pairs, swelling distally and suddenly bent down toward marginal rim. Test granulose.

Type-species:—*Cheiropyge* (*Suturikephalion*) *koizumii*, gen. et sp. nov.

Remarks:—This subgenus has the cephalon very similar to *Cheiropyge kansasensis* Weller, 1944, but it has the facial suture. The pygidium resembles *Cheiropyge himalayensis* Diener, 1897, but pleural

Figs. 1-5. *Cheiropyge* (*Suturikephalion*) *koizumii*, subgen. et sp. nov.
 1a, b: Reconstructed cephalon and pygidium, $\times 4$. 2: Internal mold of a complete dorsal shield, $\times 3.5$. 3a, b: Rubber replica of a pygidium, $\times 5$.
 4, 5: Rubber replicas of two cephalons, $\times 3.5$, $\times 4$.

ribs do not end in such projections as Diener emphasized. The post-axial lappet is so well developed as it embraces the terminus of the axial lobe.

Distribution:—Middle Permian; Eastern Asia (Japan).

Cheiropyge (*Suturikephalion*) *koizumii*, gen. et sp. nov.

1978. *Cheiropyge* sp. aff. *C. himalayensis*, Koizumi and Sasaki, Chigaku-kenkyu, vol. 29, p. 299, pl. 1, figs. 1–8.

Additional characteristics of the type-species are as follows:

Dorsal shield fairly inflated, roughly twice longer than broad and densely granulate. Cephalon forms an obtuse angle in front; intra-marginal depression crescentic; glabella small, unfurrowed except for distinct occipital furrow; eyes very large, in posterior; two pairs of particularly large tubercles present near anterior ends of glabella and eyes; anterior branch of facial suture extending forward from between these tubercles in describing an arc; posterior branches crossing cheek border laterally and posteriorly. The collection contains a right free cheek isolated from the cranidium.

Pygidium trigonal, about as wide as long; axial lobe terminating at about one-sixth of pygidium from posterior end, divided into 15 to 16 rings, some of which bear prominent median tubercles. Beside anterior band of the first pleuron, pleural ribs in six pairs are present, anterior ones of which are divided into a thick anterior band and a very thin posterior band by a linear interpleural furrow; these ribs broadened distally and suddenly bent down near periphery, instead of becoming projections through the marginal rim.

Occurrence:—Quarry, Omote-matsukawa, Kesennuma city, Miyagi Prefecture; late Middle Permian to early Upper Permian Iwai-zaki stage.

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