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A new species of the Lower Ordovician pliomerid trilobite *Pseudocybele* and its biostratigraphic significance

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Abstract

A low diversity trilobite fauna consisting entirely of new species occurs at several horizons in the Blackhillsian Stage (Floian), in a narrow stratigraphic interval high in the Fillmore Formation in the southern Confusion Range, Ibex area, Millard County, western Utah. This is the type section of the Blackhillsian Stage, the highest of the four stages with comprise the Ibexian Series, the Laurentian Lower Ordovician. The interval occurs between the underlying *Presbynileus ibexensis* Zone and the overlying "*Pseudocybele nasuta* Zone". Previous studies assigned the interval to the *P. nasuta* Zone, but new collections show that the fauna is unique and shares no species with either the underlying or overlying assemblages. It was recognized in 2009 as the *Pseudocybele paranasuta* Zone, but the name bearer was not formally described. *Pseudocybele paranasuta* **n. sp.** is a distinctive pliomerid trilobite with diagnostic features including: clusters of granules on the frontal lobe of the glabella and the middle body of the hypostome; maculae along the lateral branches of the middle furrow of the hypostome; a short, slender median hypostomal spine; and a strong, W-shaped impression in the terminal piece of the pygidium.

Key words: biostratigraphy, trilobites, Pliomeridae, Ibexian, Blackhillsian, silicified

Introduction

The Ibexian Series comprises the Laurentian Lower Ordovician (Ross *et al*., 1997) and is based on a series of shelly fossil (primarily trilobite) biozones first developed by Ross (1949, 1951) in rocks of the Garden City Formation of southern Idaho and northern Utah, and applied with some modification and extension by Hintze (1951, 1953) to the Pogonip Group of western Utah and eastern Nevada. Many new genera and species were introduced in Ross and Hintze's groundbreaking original monographs, but very little additional work was completed in the nearly half-century between the original collections of the faunas and the formal proposal of the Ibexian series (see Adrain *et al.* [2001] for a summary). New collections of rich silicified trilobite faunas from the classic Ross-Hintze sections made as part of an ongoing comprehensive field-based revision (Adrain *et al*., 2001, 2003; Adrain and Westrop, 2006a, 2006b, 2007a, 2007b; McAdams and Adrain, 2009a, 2009b) have revealed several stratigraphic intervals characterized by unique faunas which were previously overlooked. These newly discovered faunas, as well as new species from established faunas, permit the development of a highly resolved new biostratigraphic zonation for the Ibexian Series (Adrain *et al*., 2009, and ongoing work in progress). Some of these newly recognized intervals contain entirely undescribed faunas, with no available species which might be used as zonal name bearers. It is essential that such species be described in order to facilitate a formal biostratigraphic scheme which may be used as a framework for subsequent taxonomic and phylogenetic work. The goal of this work is to describe one such key index species, *Pseudocybele paranasuta* **n. sp.** The name *Pseudocybele paranasuta* was listed, and two specimens illustrated, by Adrain *et al.* (2009), but the species was not formally treated or diagnosed and usage of the name was as a *nomen nudum*.

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