

A NEW GENUS OF DIMEROPYGID TRILOBITES FROM THE LOWER ORDOVICIAN (IBEXIAN) OF WESTERN UTAH, USA

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Members of Dimeropygidae Hupé, 1953, are common components of silicified shallow water Ordovician trilobite faunas found in the type Ibexian area in the Tule Valley of Millard County, western Utah. Many undescribed species have been discovered in the course of a comprehensive, field-based revision of the Ibexian faunas described by Ross (1951) and Hintze (1953). Several new genera are represented, and description of this new diversity is underway (Adrain and Westrop, 2006, 2007; Adrain *et al.*, 2001). Here we focus on a morphologically striking clade representing a new genus with species occurring in the Stairsian, Tulean, and Blackhillsian stages.

The new genus includes "*Psalikilopsis* (?)" *alticapitis* Young, 1973, along with six new species. Members of the new genus are small, highly vaulted, and most are robustly tuberculate. Synapomorphies include a linear or arcuate array of tubercles on the librigenal field, and pygidia with long fulcral spines and a pronounced "wall" structure of fused pleural bands similar to that seen in species of the younger *Dimeropyge* Öpik, 1937. Morphological diversity is high within the genus, particularly with respect to sculpture, pygidial features, and degree of effacement.

Relationships within Dimeropygidae and related groups are poorly understood (Adrain *et al.*, 2001; Adrain and Westrop, 2007), mainly due to incomplete knowledge of many of the generally small and tuberculate species. Adrain and Westrop (2007) outlined the major unanswered questions in the phylogenetic structure of the family. In order to make progress, it is critical that new morphological data be developed to permit quantitative phylogenetic analyses. Adrain and Westrop (2007) carried out a parsimony analysis of their new *Bearriverops*, and we have conducted an analysis of the new genus reported herein.

Parsimony analysis of the seven species plus an outgroup species was based on 46 characters (16 cranidial, 15 librigenal, and 15 pygidial) and 109 character states. An undescribed dimeropygid from the Skullrockian Stage was selected as an outgroup. An exhaustive search with all characters unordered yielded a single most parsimonious tree of length 89, consistency index .708, and retention index .653.

Members of the new genus are usually relatively rare components of the diverse (typically 10-20 species) faunas in which they occur. Because of their highly characteristic morphologies, however, they may have considerable biostratigraphic potential.

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