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**Revision of the Lower Ordovician (lower Floian; Tulean)
pliomerid trilobite *Protopliomerella*,
with new species from the Great Basin, western USA**

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Table of contents

Abstract	3
Introduction	3
Localities and Stratigraphy	4
Systematics	6
Family Pliomeridae Raymond, 1913	6
<i>Protopliomerella</i> Harrington, 1957	6
<i>Protopliomerella contracta</i> (Ross, 1951)	7
<i>Protopliomerella stegneri</i> n. sp.	13
<i>Protopliomerella bowlesi</i> n. sp.	16
<i>Protopliomerella kerouaci</i> n. sp.	19
<i>Protopliomerella seegeri</i> n. sp.	23
<i>Protopliomerella okeeffeae</i> n. sp.	24
<i>Protopliomerella</i> n. sp. A	27
<i>Protopliomerella</i> n. sp. B	28
Acknowledgements	28
Literature cited	28

Abstract

New field sampling of classic Ibexian sections in the Great Basin has resulted in the discovery of several new species assignable to the pliomerid trilobite genus *Protopliomerella* Harrington, 1957. The genus was originally monotypic and based on *Protopliomerops contracta* Ross, 1951. *Protopliomerella pauca* Demeter, 1973, was later added, but it is shown herein to be a junior subjective synonym of *P. contracta*. The material originally assigned to *Protopliomerella contracta* by Ross belongs to as many as three distinct, stratigraphically separate species. New species include *P. stegneri*, *P. bowlesi*, *P. kerouaci*, *P. seegeri*, and *P. okeeffeae*. Two additional new species are not well enough known to name and are reported in open nomenclature. The phylogenetic status of *Protopliomerella*, as thus conceived, is ambiguous and the taxon may be rendered paraphyletic by the genera *Pseudocybele* Ross, 1951, and *Lemureops* McAdams and Adrain, 2009.

Key words: Silicified, biostratigraphy, taxonomy, Utah, Idaho, Nevada

Introduction

This is the fifth in a series of studies revising members of Pliomeridae Raymond, 1913, (McAdams and Adrain, 2009a, 2010, 2011a, 2011b) as part of a larger field-based description and revision of Ibexian (Tremadocian–Floian) and early Whiterockian (Dapingian) silicified trilobite faunas from the Great Basin. The faunas were originally described from northern Utah and southeastern Idaho by Ross (1951), and from western Utah and eastern Nevada by Hintze (1953). Adrain *et al.* (2009) summarized the history of study and established a revised and expanded trilobite-based biostratigraphic zonation for the Tulean and Blackhillsian stages which is followed herein.

This paper focuses on *Protopliomerella*, which Harrington (1957) erected as a monotypic genus with the type species *Protopliomerops contracta* Ross, 1951, from the Garden City Formation of northern Utah. Demeter (1973) later added a younger species, *P. pauca*, from the Fillmore Formation of western Utah, and these have been the only formally named members of the genus prior to the current study. Although members of this group are common at many horizons in early to late Tulean (lower Floian) strata (*Psalikilopsis cuspidicauda* Zone–*Heckethornia bowiei* Zone) of the Garden City and Fillmore formations, most of the species diversity has not been recognized. Sclerites belonging to new species have previously been misidentified mainly as *P. contracta* (Ross, 1951), but also as *P. pauca* Demeter, 1973. Indeed, material representing each named new species, as well as *Protopliomerella* n. sp. B, has been figured at some point by either Ross (1951), Hintze (1953), or Demeter (1973). Failure to properly discriminate species has vastly inflated the supposed stratigraphic thickness of Ross *et al.*'s (1997) *Protopliomerella contracta* Zone, which was recently restricted by Adrain *et al.* (2009).

The goals of this work are: 1) to revise and redescribe *Protopliomerella contracta*; 2) to name and describe five new species known from abundant silicified material from Idaho and Utah; 3) to describe two additional species from Utah and Nevada in open nomenclature; and 4) to diagnose *Protopliomerella* on the basis of putative synapo-