

Abstract

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Lower Anisian Ammonoids from the northern Humboldt Range (northwestern Nevada, USA) and their bearing upon the Lower-Middle Triassic Boundary

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ABSTRACT

The northern Humboldt Range section is of critical importance because it provides the most complete low paleolatitude ammonoid record across the Lower-Middle Triassic boundary. The various Lower Anisian faunas, including that of the *Caurus* Zone, are therefore respectively well constrained at their lower limit by the Spathian *Haugi* Zone and their upper limit by the early Middle Anisian *Hyatti* Zone. The newly established Lower Anisian sequence is divided into, in ascending order, the *Japonites welteri*, *Pseudokeyserlingites guexi* beds, *Mulleri* and *Caurus* Zones. Consequently, the scope of the Lower Anisian substage for low paleolatitude faunas is substantially enlarged. Furthermore, this sequence emphasizes the differences between the next underlying latest Spathian *Haugi* Zone, whose substage assignment has been hitherto a matter of controversy, and the various overlying biochronologic units here referred to the Lower Anisian substage.

Recognition of correlative units is hindered by the generally agreed upon pronounced paleolatitudinal distribution of Lower Anisian ammonoids and more prosaically, by both the scarcity and unreliability of low paleolatitude data. Around the Lower-Middle Triassic boundary, the latest Spathian *Haugi* Zone provides the most widely applicable biochronological marker available. Its correlatives are the Canadian *Subrobustus* Zone and the Siberian *Spiniplicatus* Zone. The Lower-Middle Triassic boundary is thus placed above the *Haugi* Zone and its correlatives, and below the varied, ill-correlated faunas of Lower Anisian age. The Nevada record demonstrates that the *Paracrochordiceras-Japonites* pair of low paleolatitude affinity has little significance for intra-substage correlations. The *Pseudokeyserlingites guexi* beds are expected to have correlatives in California (Inyo Range) and in China (Qinghai). Unfortunately, none of these additional occurrences is known to display clear superpositional relationships with respectively older or younger faunas. Both the *Mulleri* and *Caurus* Zones of the northern Humboldt Range are assumed to correlate at least partly with the more comprehensive British Columbia *Caurus* Zone and the upper part of the Siberia *Taimyrensis* Zone. These preliminary rough correlations, as yet not formally demonstrated, are amenable to further refinements when a more detailed scheme of the British Columbia Lower Anisian will be made available.

Two new genera and fifteen new species are also described.

1. Introduction

This paper deals with Lower Anisian ammonoids from northwestern Nevada. The studied sequence spans throughout the lower part of the Fossil Hill Member (Prida Formation, Star Peak Group) and is geographically restricted to the northern Humboldt Range (Pershing County, see Fig. 1), the only area where the oldest Fossil Hill strata escaped subsequent Middle Triassic uplift and erosion (NICHOLS & SILBERLING 1977).

The Fossil Hill Member yielded only few Lower Anisian ammonoids in comparison with its wealth of Middle and Upper Anisian ammonoids. Out of the long list of Anisian ammonoids described by HYATT & SMITH (1905) and SMITH (1914), only *Isculites meeki* (HYATT & SMITH) actually turned out to be a Lower Anisian taxon.

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