

1. INTRODUCTION

The Mesozoic section in much of the western interior of the United States is characterized by a prominent sequence of nonmarine, variegated claystones and sandstones measuring up to 700 feet (200+ m) in thickness that is generally considered to be of Late Jurassic and Early Cretaceous age. The lower part of this sequence, widely referred to as the Morrison Formation, has produced perhaps the most significant and diverse terrestrial vertebrate fauna known from all of the Mesozoic. The upper part of the sequence is variously referred to as the Cloverly, Kootenai, Dakota, Inyan Kara, Lakota-Fuson, Gannett, Lytle, Cedar Mountain or Burro Canyon Formation, but until now it has contributed less than half a dozen fragmentary fossil vertebrate specimens to our published knowledge. After years of debate, the age of the Morrison Formation is now generally accepted as Kimmeridgian to Early Portlandian (Simpson, 1926; Baker, Dane and Reeside, 1936); the overlying nonmarine strata are considered as Aptian or Early Albian (Peck, 1941, 1951; Peck and Craig, 1962; Stokes, 1952).

The apparent absence of fossil vertebrates in strata overlying the Morrison Formation, together with the fact that Early Cretaceous vertebrates are exceedingly rare and poorly known from all regions of North America, prompted the present investigation. Added to these were the efforts of several individuals, particularly during the 1930's and 1940's, that resulted in intriguing collections purportedly from the Cloverly Formation of Montana. None of this early work has been reported, but the nature of the materials indicates that a fauna quite distinct from that of the Morrison Formation apparently does exist in the upper part of this nonmarine sequence. In spite of inadequate stratigraphic data, it appeared that these collections might well represent the most significant evidence available of Early Cretaceous vertebrates in the Western Hemisphere.

Aside from these earlier unreported collections from the "Cloverly", the sum total of our knowledge of Early Cretaceous terrestrial vertebrates in North America rests on very fragmentary or isolated materials from: 1) the Arundel Formation of Maryland (Marsh, 1888; Lull, 1911a, 1911b; Gilmore, 1921), 2) the Trinity Group of Texas and Oklahoma (Larkin, 1910; Stovall and Langston, 1950; Patterson, 1951, 1955, 1956; Slaughter, 1965), 3) the "Lakota" of South Dakota (Lucas, 1901, 1902; Gilmore, 1909), 4) the Kootenai of Montana (Olson, 1960), and 5) the Dakota of Kansas (Eaton, 1960). In addition, a solitary specimen, often cited as Late Cretaceous in age but almost certainly from the Dakota sandstone capping Como Bluff in southern Wyoming, the type of *Nodosaurus textilis*, was described by Marsh (1889). These constitute the published record of Early Cretaceous vertebrate life in North America.

Although the Late Jurassic-Early Cretaceous continental sequence is widespread throughout most of the western interior (exposures of part or all of this sequence