MESOZOIC STRATIGRAPHY OF CANYONLANDS
NATIONAL PARK AND ADJACENT AREAS*

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Introduction

Much of the scenic beauty of the Canyonlands area in eastern Utah is due to the magnificent exposures of the colorful Triassic and Jurassic formations. Exposures of the total Mesozoic, as well as upper Paleozoic section, in and adjacent to the Canyonlands National Park are among the best in the Colorado Plateau province. The geologic literature abounds with papers on various parts of the Mesozoic stratigraphy either of local or regional scope. The purpose of this paper is to summarize briefly the Mesozoic stratigraphy in Canyonlands National Park and adjacent areas. For a more thorough or detailed treatment, the reader is referred to the many fine papers, some of which are listed in the bibliography.

Before discussing local stratigraphy a general broad-brush treatment of the regional stratigraphy and paleogeography would be useful in understanding local details.

Based on regional paleogeography of the Colorado Plateau and adjacent areas, the Mesozoic section of the plateau can be divided into two gross parts: (1) a generally “pre-Nevadan” part composed of the Moenkopi through Summerville Formations, Early Triassic to Late Jurassic (Oxfordian), when the seaway was to the west and northwest, and the fluvial clastics were derived from the east and southeast; and (2) a Nevadan-early Laramide part composed of the Morrison Formation through Mesaverde Group, Late Jurassic (Kimmeridgian) through Late Cretaceous, when the dominant clastic source area was to the west and southwest and the seaway was to the east and northeast.

During deposition of the “pre-Nevadan” sediments, tectonic conditions were very stable in the Colorado Plateau area except for local salt tectonics in the eastern Paradox basin. A slight increase in subsidence toward the miogeosyncline on the west is indicated by depositional thickening of most of the units. Three widespread shallow marine transgressions during Moenkopi, Carmel and Curtis times, respectively, resulted in deposition of marine limestones on the west and northwest that grade into marginal marine red siltstones and silty sandstones to the east and southeast. Separating the marine and marginal marine deposits are nonmarine deposits that generally represent an interplay between fluvial red bed deposits derived from mild positive areas east, southeast or south of the Colorado Plateau, and eolian sands brought in by predominantly northwesterly winds. Unconformities are also present in the sequence. It was during this “pre-Nevadan” time that the red sandstones and shales that make much of the Colorado Plateau area so colorful were deposited.

The Cordilleran miogeosyncline situated far to the west started to break up as early as Middle or Late Triassic time. In addition, the development of a western provenance in Late Jurassic (Callovian-Oxfordian) time is indicated by pebbles and granules in Curtis and Entrada equivalents on the western margin of the Colorado Plateau. But these earlier uplifts had little effect on the deposition of the Colorado Plateau sequence, except for a very low relief unconformity at the base of the Curtis transgression (Wright and Dickey, 1963, p. 3). However,

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