

GEOLOGIC HISTORY OF THE WIND RIVER BASIN, CENTRAL WYOMING

(R. M. A. G. Evening Meeting, September 23, 1964)

**WILLIAM R. KEEFER: U. S. Geological Survey,
Denver, Colorado**

ABSTRACT: The Wind River basin was part of the stable shelf region that lay east of the Cordilleran geosyncline during Paleozoic and much of Mesozoic time. Rocks representing all systems except possibly the Silurian were deposited across the area during repeated transgression and regression of the epicontinental seas. Most formations are thicker and more complete in the western part of the basin than in the eastern part, and some units disappear eastward owing to truncation or non-deposition. Depositional environments, generally marine, were often influenced locally by slight fluctuations in sea level or by tectonic movements. The latter were limited to broad upwarping and downwarping along trends which, with few exceptions, show little direct relation to structural trends developed later during Laramide deformation.

Near the close of the Jurassic, highlands began to form in the geosynclinal area west of Wyoming, and the major sites of deposition shifted eastward. During Late Cretaceous time the seaways lay in eastern Wyoming, and a thick sequence of alternating transgressive, regressive, and non-marine deposits accumulated across the Wind River basin area. The latest marine invasion (represented by the Lewis Shale) covered only the eastern part of the basin.

Laramide deformation began in latest Cretaceous time with downwarping of the basin trough and broad doming of parts of the peripheral areas. The intensity of movement increased through the Paleocene, and culminated in earliest Eocene time in high mountains that were uplifted along reverse faults. A complete record of orogenic events is preserved in the more than 20,000 feet of fluvial, paludal, and lacustrine strata that accumulated in the areas of greatest subsidence during this period.

Basin subsidence and mountain uplift had virtually ceased by the end of Early Eocene time. Clastic debris eroded from the mountains, augmented by volcanic debris, continued to fill the basin during the later stages of Tertiary time. Near the end of the period the entire region was elevated several thousand feet above its previous level, and the present cycle of erosion was initiated. Normal faulting, perhaps concomitant with regional uplift, locally modified the older structural features.

The Mountain Geologist, v. 2, no. 1, 1965, p. 43

BMC

Betty McWhorter
oil secretary

711 Colorado Building
255-0355
Denver, Colorado 80202



d. a. linn
DRAFTING SERVICE

709 COLORADO BUILDING
DENVER, COLORADO, 80202
PHONE 825-2694