PHASES OF OROGENY IN THE FOLD BELT OF WESTERN WYOMING AND SOUTHEASTERN IDAHO

By

A. J. Eardley

LATEST JURASSIC AND EARLY CRETACEOUS PHASE

The fold and thrust belt of southeastern Idaho and western Wyoming contains Paleozoic miogeosynclinal sediments of considerable thickness in the western part and shelf sediments in the eastern part. It also contains in its central and eastern parts thick complements of Mesozoic sediments derived for the Mesozoic geanticlinal region to the west.

The Ephraim conglomerate marks the first vigorous uplift of the geanticlinal to the west, and the age of the conglomerate, according to Mansfield (1927), is Early Cretaceous, but according to W. L. Stokes (personal communication) may be latest Jurassic. Somewhat later, but still in early Cretaceous time, the Bechler conglomerate was washed eastward from the westward-lying geanticline.

COLORADO PHASE

The orogenic deposits of the Colorado phase (Fig. 1) north and northeast of Jackson are the Frontier formation, Cody shale, Bacon Ridge sandstone, and the Coaly Sequence (Love, 1956a). They make up a series of clastic deposits about 5,000 feet thick. East of Evanston the Frontier formation and Hilliard shale are about 9,000 feet thick. These deposits undoubtedly attest the rise of adjacent land on the west, but for most of the length of the deformed belt it is impossible to identify any structures there that were formed at this time. The Taylor and Ogden thrusts predate the Willard thrusting, which is probably Montana in age, so they may be structures formed as the west-lying land was elevated.

MONTANA PHASE (EARLY LARAMIDE)

The deformed belt of western Wyoming and southeastern Idaho is noted for a number of thrust faults, the main ones of which are shown on Fig. 2. They have all moved eastward, or at the north end of the belt north-eastward, and in places a number of sheets are stacked on each other in imbricate fashion. These probably formed during late Montana or early Paleocene time.

The Bannock thrust was first detailed by Mansfield (1927) as shown in Fig. 2. A sheet of wide proportions was postulated to have moved eastward over 40 miles and to have been folded and eroded such that a large window occurs in it. Later work by geologists of Standard Oil Company of California and the U. S. Geological Survey indicates that several imbricate thrust sheets are involved and that the interpretation of one single sheet is not correct.

The Absaroka thrust has been traced the entire length of the belt and is an integral part of the frontal structure of the central and southern parts. To the north it runs back of the Darby thrust, presumably of the same age. Also on the north end a complex of thrust sheets, one particularly of considerable extent, the St. John, over-rides the Absaroka in the Snake River Range. It may belong to the Paleocene or Eocene phase of deformation.

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1Dean, College of Mines and Mineral Industries, University of Utah.