The end of Cretaceous time in the Piceance Creek basin is marked by broad uplift and local folding, followed by a period of erosion. Flank structures of the basin were extensively eroded and peneplaned before being covered by later sediments. Basal members of the overlying Paleocene sediments usually contain conglomerates of a diversified origin.

Paleocene sediments in the basin are similar to the Mesaverde section. They range in thickness from a few feet on the edge of the basin to more than 3,000 feet in the deep basin, and indicate active structural growth of the basin during this period.

Growth of the basin continued to be active during Wasatch time. Thickness variations of this section indicate that structural deformation was mainly on a broad basis; previously prominent local features within the basin had only slight influence on the thickness of the Wasatch sediments.

Continued growth of the basin is clearly evident in the thickness variations of the Green River sediments. In contrast to the Wasatch period, however, the local structural features within the basin were again active and are expressed in thickness and facies changes.

The present great structural relief of the Piceance Creek basin is mainly the result of tectonic activity following the deposition of the Green River sediments, the last consolidated sediments found in the basin.

The most favorable stratigraphic-type reservoirs within the present economic reach of the drill in the Piceance Creek basin are of Cretaceous and later age. The nearly constant structural deformation of these sediments since their deposition along established patterns has maintained favorable conditions for the accumulation of petroleum in stratigraphic-type traps on the flanks of the basin.

Significant deposits of gas and some oil have been found in stratigraphic traps in widely scattered areas of the basin. Some accumulations appear to have had strong local structural influence; others can have been influenced only by broad structural movements. Apparent economic productive potentials have been measured from nearly all Cretaceous and post-Cretaceous formational units represented in the basin.

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White Mesa Field, Environmental Trap, Paradox Basin, Utah

It has been said in the White Mesa field, "Every well is a wildcat." The present study indicates the situation is, perhaps, not entirely uncertain.

Located on the southern flank of the Paradox basin, the field (with one exception) produces from the Desert Creek zone of Pennsylvanian (Cherokee) age. To December 1, 1958, there were 48 oil wells.

Structurally the area can be divided into two units. The southeastern part strikes N. 30° W. to N. 90° E. (averaging N. 30–70° E.), and dips gently west and north at 60–115 feet per mile. It appears probable that this part is the west and north flanks of an anticline located east and southeast of present wells. In the northwestern part of the field, a small area of closure is present. This part trends northwest-southeast, and is related to the Ratherford field northwest of White Mesa. It is separated from the southeastern part of White Mesa by a narrow syncline opening (?) northeast.

Production in the field is from vuggy, bioclastic limestone, secondary dolomite and oölitic limestone.

The Desert Creek zone ranges from 137 to 207 feet in thickness. It is characterized by three centers of thickening: one in the northwest, one in the northeast, and one in the south part of the field.

Stratigraphically the field is an area of rapid lateral and vertical lithologic change. The lithofacies pattern can be divided into three units: high carbonate (limestone-dolomite versus evaporite more than 79%) rocks on the northern margin, similar high carbonate-versus evaporite rocks trending north-south, subsidiary to the northern unit, and a restricted lithofacies (increased evaporite) bordering the northern margin and surrounding the north-south-trending carbonate lithofacies. Because of these variations oil has been environmentally trapped. The specific change most instrumental in entrapment, is the transition from deposits of a shallow, well oxygenated, agitated, marine environment to deposits of a deeper-water, relatively quiet, restricted, marine environment. The latter might be called "lagoonal."

Many wells in White Mesa produce from rocks deposited in the restricted environment; eleven dry holes have found a slightly greater environmental restriction and were not productive due to negligible permeability.

In origin White Mesa and the related fields (Aneth, McElmo Creek, Ratherford) have been called a "reef complex." The writer believes the term biostromal complex to be more descriptive of Desert Creek zone stratigraphy in the area.

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Stratigraphy of Amsden Formation in Wolf Springs-Delphia Area, Central Montana

The Amsden formation thins progressively northward by pre-Piper truncation. This can be dem-