OIL AND GAS IN PERMO-PENNYSylvANIAN ROCKS OF THE MAROON BASIN, NORTHWESTERN COLORADO AND NORTHEASTERN UTAH

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INTRODUCTION
The Maroon basin is a name here applied to a sedimentary basin of Permo-Pennsylvanian age that has been referred to in earlier publications of the R. M. A. G. as the Colorado trough (Thurman, F. A., 1954, p. 28 and Figure 5; Landon, R. E. and Thurman, F. A., 1955, p. 12-15). The basin trends northwesterly through central and northwestern Colorado and into Uintah County in the adjoining part of northeastern Utah. It was flanked by uplands which shed arkosic debris into the basin from then-exposed Precambrian rocks.

Oil and gas have been found, with one minor exception, only in the upper part of the thick sedimentary fill of the basin; the apparent reason for this is that only the upper part includes rocks having appreciable permeability and effective porosity. One well at Ashley Valley produces from the Phosphoria (and Weber) and essentially all other oil and gas occurrences are in the Weber sandstone. General Petroleum tested 120 feet of very slightly gas-cut mud in their Schulte well in Garfield County. This is the only show of oil or gas beyond the limits of Weber sandstone tongues in the basin.

Some 93 wildcats have penetrated the Weber in the Maroon basin. Four of these resulted in the discovery of Weber oilfields: Rangely, Elk Springs, and Thornburg in Colorado, and Ashley Valley in Utah. Five of the wildcats recovered free oil on drill stem test and three of these were completed to produce small volumes of oil; one is still "producing." Twenty-four Weber tests encountered oil or gas shows; 60 Weber tests encountered no shows. As of mid-June, 1958, there were four projected Weber wildcats drilling in the basin in Colorado. The average density of Weber wildcat tests in the basin is less than one per hundred square miles, but the top of the Weber is deeper than 10,000 feet in about half of its subsurface extent in northwestern Colorado and Uintah County, Utah.

About 16 wildcats in the Maroon basin have penetrated the Permo-Pennsylvanian--outside--of--the--area--of Weber occurrence (the exact number depends on the limits chosen for the basin). Of these, only one encountered any show of oil or gas. As of mid-June, 1958, there is one projected Permo-Pennsylvanian wildcat test drilling.

PRODUCING OIL FIELDS
Rangely
The Weber pool of the Rangely oil field is one of the larger oil fields in the United States and, consequently, much has been written about it.

Selected References (including maps)

Location
T. 1 & 2 N., R. 101, 102, and 103 W., in northwestern Rio Blanco County, Colorado.

Structure
Campbell (1955, p. 99) describes the structure thus: "The north trending Douglas Creek arch is situated between the Uncompahgre uplift and the Uinta Mountain fold and has been the principal tectonic factor in the estrangement of the Piceance basin of Colorado and the Uinta basin of Utah. Rangely field lies on the north end of the Douglas Creek arch. . . The Rangely anticlinal dome is about 10 miles long trending north 60 degrees west. Though essentially a mild fold, the southwest flank attains dips of 30 degrees. . . There is nearly 2000 feet of surface closure and subsurface data are in reasonable conformity." The northeast flank dips at about 6 degrees. Ritzma (1957, facing p. 24) shows the Rangely fold to parallel the east-west family of structures related to Uinta Mountain uplift. It appears to have only a loose genetic relationship to the north trending Douglas Creek arch.

Stratigraphy
Campbell (1955, p. 99) describes the Weber as being "1200 feet thick, containing effective pay zones in the upper 400 feet. The pay interval is very fine grained, lightcolored calcareous sandstone. The formation gains red coloring downward and has a few shale breaks. The lower third is arkosic characterized by tight clayey,