Oligocene age. Subsequent development has proved the accumulation of oil and gas in other sands of the same formation.

The reservoir is a faulted anticline whose major axis trends northwest-southeast along regional strike. Closure against a major fault on the updip side of the structure accounts for the oil and gas accumulation. The fault has a maximum throw of 880 feet on top of the Sam Fordyce sand, and 260 feet of producing closure.

Geologically the Sam Fordyce structure is an outstanding example of differential sedimentation during the time of fault movement. A gradual downwarping movement Northeast into the Rio Grande Embayment is responsible for thicker sediments which are found on the downthrown side of the major fault.

The productive area of the field embraces 2,000 acres, of which 900 acres are within the oil productive zone of the Sam Fordyce sand, 260 acres in the Wheeler sand, and 215 acres in the Barlow sand.

65. J. G. CRAWFORD, U. S. Geological Survey, Casper, Wyoming
Oil-Field Waters of the Rocky Mountain Area
Relationship of Water to the Accumulation of Oil and Gas in the Rocky Mountain Region

66. N. W. BASS, U. S. Geological Survey, Washington, D. C.
HAROLD M. SMITH, U. S. Bureau of Mines, Bartlesville, Oklahoma
Geologic Relationship of Crude Oil in the Tow Creek, Wilson Creek, Iles, and Moffat Fields, Colorado

A comparison of the composition of crude oils from six zones ranging in age from Jurassic to Cretaceous in the Tow Creek, Wilson Creek, Iles, and Moffat fields, and oil from a seep at Tow Creek, Colorado, shows that, except at Wilson Creek, the oil in each pool is unlike the oil in all other pools of these fields, whether at the same or a different stratigraphic position. In the Wilson Creek field the oil from the Sundance formation is similar to the oil from the overlying Morrison formation. These facts may indicate that, except at Wilson Creek, the source of the oil of each pool was local to that pool; or the data may indicate that the oil of the several pools was at one time similar and was affected differently during the folding and faulting that formed the domes and anticlines. The oil in the Morrison formation at Wilson Creek may have migrated upward from the Sundance formation. The oil in the north Tow Creek pool and the oil in the seep at Tow Creek may have been altered by an intrusive body that occupies a large area in the north part of the Tow Creek anticline. On the other hand, the differences between the oils near the intrusive body are no greater than between oils in a region in Oklahoma containing no intrusive bodies, which has been investigated recently by the research committee of the Tulsa Geological Society.

67. KENNETH G. BRILL, JR., University of Chattanooga, Chattanooga, Tennessee
Late Paleozoic Stratigraphy of the Gore Area, Colorado

The area is located in Eagle and Summit counties in west-central Colorado. Two new late-Paleozoic formational names are proposed. In the area the name Battle Mountain formation is given for the clastics which were originally assigned to the Weber shale, Weber grit, and Maroon formation. The Belden shale member of this same formation is proposed to include the lower dark shale originally called the Weber shale. Much of the Battle Mountain formation is found to be of Des Moines age. The name State Bridge formation (of Donner) is applied to the red siltstones and shales which lie between the Battle Mountain formation and the Triassic sediments. These beds may be either Pennsylvanian or Permian in age. At least a part of the gypsum of the Eagle Basin is shown to belong in the Des Moines series.

68. HORACE D. THOMAS, University of Wyoming, Laramie, Wyoming
MAX L. KRUEGER, Union Oil Company, Los Angeles, California
Late Paleozoic and Early Mesozoic Stratigraphy of the Uinta Mountains, Utah

At the western end of the Uinta Mountains Triassic rocks rest unconformably on the Permian Park City formation. From the base upward the Triassic formations are (1) red Woodside shale, (2) marine Thaynes limestone, and (3) Ankareh redbeds. The Ankareh is overlain by the Jurassic Nugget (Navajo) sandstone. The Thaynes tongues out eastward, and east of its edge the Woodside and the Ankareh can not be differentiated.

At the eastern end of the mountains Woodside redbeds rest on the Pennsylvanian