River Formation in the Uinta basin is from the black-shale facies or equivalent units.

TOHILL, BRUCE R., Pan American Petroleum Corp., Denver, Colo.

DEPOSITIONAL ENVIRONMENTS OF "J" SANDSTONE (LOWER CRETACEOUS), DENVER BASIN, COLORADO

(No abstract submitted)

VAN WEST, FRANK P., Skelly Oil Co., Denver, Colo.

PALEOGEOMORPHOLOGY AND MINNELUSA ACCUMULATIONS, EAST FLANK, POWDER RIVER BASIN, WYOMING

Regional southwestward dip, the original paleotopography at the Minnelusa unconformity, and porosity and permeability changes within the subcropping Minnelusa sandstones together form various types of traps. Channel traps also exist, but are rare.

VINE, JAMES D., and ELIZABETH B. TOURTELOT, U. S. Geol. Survey, Denver, Colo.

GEOCHEMISTRY OF SOME LOWER EOCENE SANDSTONES IN ROCKY MOUNTAIN REGION

(No abstract submitted)

VOLK, RICHARD W., Plains Exploration Co., Denver, Colo.

FUTURE PETROLEUM POTENTIAL OF PRE-CRETACEOUS ROCKS OF EASTERN COLORADO

Through Permian time eastern Colorado was geologically in the northwestern part of the Anadarko basin. The Denver basin and the Las Animas arch are the major geologic features in this area, and both of these attained their present structural configuration during the Laramide uplift (Late Cretaceous through early Eocene). All during Pennsylvanian and Permian times the Las Animas arch, as reflected on the top of the pre-Pennsylvanian unconformable surface, was a south-trending nose in the northwestern part of the Anadarko basin.

Early Mississippian (Osagean) trapping mechanisms are primarily structural and are along the most obvious Early Pennsylvanian regional growth feature. Late Mississippian (Meramec) reservoirs also are structural traps but indicate definite stratigraphic influence. All series of the Pennsylvanian produce, and all of the production is from stratigraphic traps except 2 minor accumulations. Permian production is limited to the west flank of the Denver basin and primarily is trapped structurally.

Before 1965, the pre-Cretaceous well density in most of eastern Colorado was extremely sparse. Since 1965, 20 Mississippian and Pennsylvanian oil and gas fields have been found and over 200 wildcat wells have been drilled. The data from these wells have enabled many previous seismic, structural, and stratigraphic problems to be solved. As the result of the new interpretations of seismic and subsurface control, numerous prospects are being defined and no doubt will result in many pre-Cretaceous discoveries in the near future.

WEIMER, ROBERT J., Colorado School Mines, Golden, Colo.

STRATIGRAPHY AND PETROLEUM POTENTIAL OF DAKOTA GROUP (CRETACEOUS), WESTERN DENVER BASIN, COLORADO

The Dakota Group is the most important stratigraphic unit for petroleum production in central and eastern Colorado. In outcrop sections along the Front Range the Dakota is dominantly sandstone. However, minor shale and siltstone strata, and inorganic and organic sedimentary structures provide the basis for subdivision of the group into a lower Lytle Formation and an upper South Platte Formation. The South Platte Formation shows a uniform westward thinning from an average of about 250 ft along the eastern margin of the Front Range to 140 ft along the western margin in South Park.

Recognition of 3 genetic units within the Dakota Group permits correlation from the more shaly sections in the eastern area to the conglomeratic sandstone sections in South Park. Genetic unit A is a fluvial channel-floodplain unit corresponding to the Lytle Formation. Genetic unit B is the lower South Platte and represents a widespread submergence of the depositional basin with encroachment of marine and brackish water into central Colorado. The marine shales of the Skull Creek, Thermopolis, Kiowa, and Glencairn Formations were deposited in eastern Colorado during this submergence. Trace fossils are used as criteria to recognize the marine and brackish-water environments of genetic unit B in areas of the southern Front Range where the Dakota is dominantly sandstone of a fluvial-estuary-deltaic origin. Genetic unit C, including the upper South Platte, the Muddy sandstone, and the J sandstone of the subsurface, records a widespread regression of the shoreline by delta progradation and associated fluvial-channel deposition. An area of maximum channel development, accompanied by erosion of underlying marine shale, extends eastward across South Park into the Denver basin between Denver and Colorado Springs. Thirty feet of oil-saturated sandstone occurs in the upper part of genetic unit C at Turkey Creek, 10 mi southwest of Denver. The saturated sandstone is associated with an isopach thin suggesting deposition in a fluvial-estuary channel that may have as much as 100 ft of associated scour. All 3 genetic units in the southern Front Range area show strong influence of a north-, northeast-, east-flowing stream system that probably persisted throughout Dakota deposition.

The depositional framework for the Dakota Group, as inferred from the outcrop studies, suggests excellent petroleum potential from stratigraphic traps in the western Denver basin. The area with maximum potential lies between the old producing trends northeast of Denver and the outcrop section on the west at depths from 7,000 to 11,000 ft.

ZIEBARTH, HAROLD C., Amerada Hess Petroleum Corp., Grand Forks, N. Dak.

STRATIGRAPHY AND HYDROCARBON POTENTIAL OF MINNELUSA GROUP, WESTERN NORTH DAKOTA

The Minnelusa Group is defined to include rock units in North Dakota lying above the truncated formations of the Big Snowy and Madison Groups (Mississippian), and below the Opeche Formation (Per-