(4) Exceptionally high carbon dioxide and/or nitrogen content of the gas from certain areas in northwestern Colorado.

28. Oil and Gas Possibilities of North Park Basin, North-Central Colorado.
R. M. Thompson, Hiawatha Oil and Gas Company, Denver, Colorado.

Stratigraphy of North Park and Middle Park is contrasted to that of South Park for clarification of tectonic and structural differences. These differences may have had profound influence upon the accumulation of hydrocarbons.

Sediments of the North Park basin are analyzed because significant changes take place within short distances in potential reservoir rocks. Unconformable relationships exist to a profound extent in Tertiary and Upper Cretaceous rocks and their importance to accumulation of oil may be significant.

Petroleum development in the area has been sporadic and at times as spectacular as it has been disappointing. Development indicates that carbon dioxide gas in one part of a basin does not necessarily condemn other portions. Significant discoveries may yet be made in this and similar intermountain basins because factors of stratigraphy and structure are favorable.

29. Little Beaver Field Area.
W. C. MacQuown, Jr., Deep Rock Oil Corporation, Denver, Colorado.

Exploratory drilling in the rapidly developing Little Beaver field area of Adams and Washington counties, Colorado, has given rise to oil discoveries at Badger Creek, East Mountain View, and West Woodrow. These field discoveries and others northeast and northwest have revived interest in largely stratigraphically trapped oil in winnowed sandstone reservoirs of the Graneros and Dakota group south of the South Platte River. Previous discoveries in the general area at Middlemist and Lee fields had not held promise of large reservoirs in this part of the Denver basin where structural closure, as determined by the seismograph, is close to the limits of error inherent in this method of prospecting, and where indicated structures are small.

Cross sections, structural contour maps, and isopachous maps indicate stratigraphic-structural relationships conducive to commercial accumulation of gas and oil. However, the presence of numerous alternating shallow marine and continental environments of sedimentation makes mapping of the extension of existing fields difficult and the mapping of wildcat prospects a technique yet to be perfected.

30. Stratigraphic Relations of Lyons Sandstone in Denver Basin.
Bruce F. Curtis, Continental Oil Company, Denver, Colorado.

Newest of the producing formations in the Denver basin is the Lyons sandstone, a reservoir probably Permian in age.

Lyons production was first established in 1953 at Keota field and an apparently much larger pool has since been proved at Black Hollow. The Lyons sandstone is limited westward by outcrops along the Colorado Front Range, and in other directions by changes of facies. Through the central, deeper part of the Denver basin much additional exploration of this new pay sand is anticipated.

31. Pre-Permian Section East of Front Range in Colorado.
Joseph R. Clair, Consultant, Denver, Colorado.

The pre-Permian section is discussed with particular regard to the changing facies encountered eastward from the Front Range.

The magnitude of the Permian-Pennsylvanian unconformity in northern Colorado is pointed out. Maps and cross sections are presented to show graphically the areas of marked facies change and to indicate areas where best reservoir conditions may be anticipated.

32. Permian Facies in Eastern Nevada.
Joseph Lintz, Jr., Nevada Bureau of Mines and Mackay School of Mines, Reno, Nevada.

The Summit Springs Unit No. 1 well drilled by the Standard of California and Continental Oil companies in northwestern White Pine County, Nevada, penetrated 5,200 feet of sediments containing 23% gypsum and anhydrite beds. Wolfcampian fusulinids occur in beds underlying the lowest gypsum. The presence of evaporites had not been suspected from studies of the outcrops. Shows of oil and gas were encountered in this sequence of beds. Lack of knowledge precludes consideration of a barrier between the evaporites and the open sea.

33. Sevy Dolomite in East-Central Nevada.
John C. Osmond, 124 Ellis Road, Havertown, Pennsylvania.

Nolan first described the Sevy in the Gold Hill district of western Utah in 1935. His evidence pointed to Middle Devonian age for the non-fossiliferous formation.

In east-central Nevada and adjacent Utah the Sevy consists of 500–1,600 feet of aphanic, homoge-

neous, white-weathering dolomite. It unconformably overlies the Laketown dolomite (Silurian) and grades upward into the Simonson dolomite (Middle Devonian). *Halysites*, found in the lower part, indicates at least part of the Sevy is Silurian; the upper part is probably Devonian. The Sevy is tentatively correlated with the Lone Mountain formation of central Nevada.

A widespread, persistent dolomitic quartz sandstone at the top of the Sevy was derived from sources on the southeast. Evidence of this is based on geographic distribution of sorting, proportion of quartz sand, cross-lamination, and regional relationships.

The slowly deposited Sevy represents a calcareous mud which was dolomitized and reworked on a tidal flat or very shallow bay. The provenance, peripheral to the miogeosyncline, was a lowland underlain by Silurian and Upper Ordovician dolomites. These were removed by erosion, and the Middle Ordovician Eureka sands were exposed to provide the quartz in the sandy phase of the Sevy.

WEST TEXAS GEOLOGICAL SOCIETY STUDENT MERIT AWARD

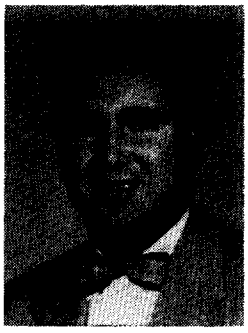
The West Texas Geological Society Student Merit Award for 1954 was given to the following three winners: LEWIS CHARLES JAMESON, JR., Sul Ross State College, Alpine, Texas; CHARLES MARK KILLGORE, Texas Technological College, Lubbock, Texas; and THOMAS BOWEN PATRICK, Texas Western College, El Paso, Texas. Each honoree is given a 2-year junior membership in the A.A.P.G. and a cloth-bound volume of the 1953 *Bulletin*.

LEWIS CHARLES JAMESON, JR., Sul Ross State College, Alpine.—Born, March 14, 1934, at Coleman, Texas. Graduated from San Angelo High School, 1951. Colleges: San Angelo Junior, 1951; Sul Ross State, 1952–1954. Physics laboratory assistant and president of Texas Chi Chapter of Alpha Chi Honor Society at Sul Ross. Holds Commercial Pilot, Flight Instructor, and Instrument Rating. Has worked for San Angelo Flight Service as flight instructor, and has given instruction at Alpine.

CHARLES MARK KILLGORE, Texas Technological College, Lubbock.—Born, May 22, 1930, at Sweetwater, Texas. Graduated from Roscoe High School, 1948. Texas Technological College, 1949, 1952–1954. Reporter, vice-president, and president, Tech Geology Club. Sigma Gamma Epsilon (honorary earth-science fraternity). Teaching Freshman laboratory and assistant in mineralogy laboratory. Enlisted in USAF, August 1, 1948; basic training at Lackland, Brooks, and Sheppard Air Force bases, Texas; jet mechanic at Williams Air Force Base, Chandler, Arizona, 1949. Industrial mechanic and welder, U. S. Gypsum Company, Sweetwater, Texas.

THOMAS BOWEN PATRICK, Texas Western College, El Paso.—Born, September 29, 1928, at Tientsin, China. Attended Abilene High School, El Paso High School, and New Mexico Military Institute, graduating in June, 1945. Colleges: New Mexico Military Institute, 1945–1946; Texas Western College, 1951–1954. President Alpha Phi Omega social fraternity. Local secretary-treasurer, Sigma Gamma Epsilon (honorary earth-science fraternity). Elected to *Who's Who Among Students in American Universities and Colleges*. Student member of A.I.M.E. Recipient of Standard Oil Company of Texas scholarship in geology, 1953–1954. Part-time employment in exploration department of El Paso Natural Gas Company, 1953–1954. U. S. Army, 1946–1948.

LEWIS C. JAMESON, JR.



CHARLES M. KILLGORE

THOMAS B. PATRICK