cated proved reserves of nearly 200 million barrels from the Mississippian formation alone. This is almost twice the combined new reserves of all other Rocky Mountain areas for the same period. It is predicted that by the end of 1955 the Mississippian reserves will be more than ½ billion barrels, or approximately ⅓ the present reserves of Oklahoma. Basis for this prediction is the variety of favorable reservoir characteristics of the Madison-Charles. Production is obtained from fractured limestones, granular-type limestone with pin-point porosity, and fossiliferous vuggy limestone within rich source beds. Accumulation is not entirely dependent on structure or large amounts of closure as in most other Rocky Mountain areas.

16. T. R. BARNES, Shell Oil Company Billings, Montana, "Case History of Pine Unit, Little Beaver, Richey and Southwest Richey."

Contour maps showing original data on which wells were drilled are compared with contour maps based on available well data. A brief résumé is given on drilling and production characteristics for each field.

17. KEN R. PARSONS and CARL W. KLAENHAMMER, Williston Oil and Gas Company, Casper, Wyoming, "The Glendive Area, Cedar Creek Anticline, Dawson County, Montana."

A presentation of the generalized stratigraphy, structural interpretation, initial development, and producing zones of this local part of the Cedar Creek anticline.

A structure-contour map (Red River-Ordovician) and stratigraphic and structural cross sections are included, together with Silurian, Devonian, and Mississippian isopachs which demonstrate the principal structural evolution of this feature prior to the advent of the most recent Laramide deformation.

18. GLENN M. FEDDERSON, Murphy Corporation, Denver, Colorado, "East Poplar Unit, Roosevelt County, Montana."

The East Poplar Unit is located on the west flank of the Williston basin in T. 28 N., R. 51 E. and T. 29 N., R. 51 E., Roosevelt County, Montana.

The East Poplar Unit includes an area of 34,134 acres of which 98 per cent has been unitized. The unit is controlled by the Carter Oil Company, Murphy Corporation, Phillips Petroleum Company, and Placid Oil Company. Murphy Corporation is the unit operator.

Structurally, the East Poplar Unit is located on an anticlinal closure on a broad regional nose.

The discovery well, the Murphy Corporation East Poplar Unit No. 1, C., SW., NE., Sec. 2, T. 28 N., R. 51 E., was completed March 12, 1952. The discovery well was drilled to the total depth of 9,163 feet into Ordovician quartzite. The well was completed dually from two zones of porosity in the upper part of the Madison formation for an initial production gauge of 325 barrels of oil per day through 8/64-inch tubing choke and 390 barrels of oil per day through 12/64-inch casing choke.

To date, eighteen oil wells and three dry holes have been completed in the Unit area.

Two areas of production have been established within the Unit area. Neither area has been fully delineated. Approximately 3,200 acres are considered proved productive at this time.

19. KINGSLEY W. ROTH, Amerada Petroleum Corporation, Williston, North Dakota, "Development in the Nesson Anticline Area, North Dakota."

This paper deals with oil discovery and developmental activity on the Nesson anticline of northwestern North Dakota. Structural and stratigraphic data resulting from the activity are reviewed and interpreted. Various items of interest pertaining to production are included.

20. C. G. STRACHAN, Gulf Oil Corporation, Tulsa, Oklahoma, "Case History, Pincher Creek Structure and Field."

The Pincher Creek structure lies in the southern part of the Foothills Belt of Alberta. Seismograph operations started in the area of the structure in 1943 as a part of the survey being carried on in the region and has been carried on periodically into 1953. The shooting was partly by the refraction method.

The discovery well is the Pincher Creek No. 1, LSD 15, Sec. 24, T. 3, R. 29 W. 4. Subsequently successful wells, the Marr No. 1 and the Bonertz No. 1, were drilled 7½ and 4½ miles, respectively, and in that order northwest of the discovery. The Schrempp No. 1 was drilled low on the structure in an attempt to find oil but only had a short section of the pay zone above the gas-water line. The Huddleston No. 1 is the most recent completion. It has modified somewhat previous ideas of the nature of the structure and has made a local change in the extent of the reservoir.

The pay zone is in Mississippian dolomites and limestones with a stratigraphic sequence similar to that at Turner Valley. The gas is in intergranular porosity zones and in general permeability occurs as the result of fracturing in the reservoir. Most of the entire productive section has been cored with consequent good control of reservoir factors.