

9. HEATH-AMSDEN BOUNDARY ON CENTRAL MONTANA UPLIFT AT BIG WALL FIELD, MUSSELSHELL COUNTY, MONTANA.

EMERSON K. BEEKLY, Northern Natural Gas Company, Billings, Montana.

The Big Wall field was discovered by The Texas Company in 1948. The main producing reservoir is a stratigraphic unit within which are irregularly bedded sands having a linear distribution. These sands also produce at the Melstone and Northwest Sumatra fields.

Workers agree on most aspects of the Heath formation of the Big Snowy group (Chester) and the Amsden formation, but the relationship of the sand-shale producing zone to these formations has remained conjectural. Initially an Amsden affinity was held, and of late the zone has been placed in the upper Heath formation. Both the lower Amsden and Heath formations are considered Upper Mississippian in age by the U. S. Geological Survey.

One factor has probably caused more confusion than any other in differentiating the producing unit from the Heath. The dark gray to black shale within which the producing sands are found is differentiated from the Heath shales only with difficulty, particularly when examined as cuttings. The sands and shales of the producing zone contain much carbonaceous plant material, the only discernible fossil, as compared with the distinctive marine fauna of conodonts and brachiopods found in the top of the Heath. Compaction slickensides are common in the carbonaceous shale. Cross-bedded sandstones and conglomeratic material indicate a more turbulent environment during deposition than there was in Heath time. Thin pebble conglomerates at the base in many places sharply mark the boundary with the Heath formation. All of the evidence mentioned indicates a hiatus, however brief, which does not favor correlation with the Heath.

10. DISCOVERY-PAPER—GRIEVE UNIT, NATRONA COUNTY, WYOMING.

W. G. OLSON, Consultant, Casper, Wyoming.

11. PRELIMINARY POOL REPORT—BURKE RANCH OIL FIELD, NATRONA COUNTY, WYOMING.

R. P. SWIRCZYNSKI, Houston Oil Company of Texas, Casper, Wyoming.

The Burke Ranch oil field is in the east-central part of Natrona County, 24 miles north of Casper, Wyoming, on U. S. Highway 87 to the Salt Creek oil field.

The Burke Ranch oil reservoir is a stratigraphic trap associated with a minor fold and/or monoclinical dip off the east limb of the Casper arch.

The Dakota sandstone is the only productive zone of this field. The zone averages 20 feet of permeable sand, and is found at subsea depths of 1,020-1,224 feet.

The crude is paraffine base, and is 35.5° A.P.I. gravity, dark brownish green in color.

The well status, on December, 1954, is 5 dry holes, 12 producers, and one drilling location. The productive limits have not been delineated.

12. GENOU TREND—STRUCTURAL FEATURE ON SWEETGRASS ARCH, MONTANA.

ANDREW G. ALPHA, Signal Oil and Gas Company, Denver, Colorado.

The Genou trend is a pre-Cambrian igneous structural alignment on which are located several structural highs visible on contour maps drawn on the Madison. The trend crosses the South arch of north-central Montana in a northeast direction, just south of Collins. This trend parallels the pre-Paleozoic and early Paleozoic structural features of the Canadian Shield in Canada and Minnesota. Geophysical evidence points to a similarly oriented structural fabric in the subsurface across central Montana and North Dakota.

Stratigraphic evidence indicates the age of the igneous emplacement as pre-Cambrian. Biostromes and probably some bioherm reefs occur on the trend. Oil shows are found in fractures, vugs, and pores throughout 80-420 feet of the basal Devonian section and in the top of the Mississippian, but the yield was only water with a rainbow of oil on drill-stem tests. The Swift sandstone is saturated with heavy black oil but also yielded nothing on tests.

13. DISCOVERY PAPER—DESERT CREEK FIELD, SAN JUAN COUNTY, UTAH.

R. W. SPALDING, Shell Oil Company, Durango, Colorado.

14. FRACTURE PRODUCTION FROM MANCOS SHALE, RANGELY FIELD, RIO BLANCO COUNTY, COLORADO.

VICTOR E. PETERSON, Equity Oil Company, Salt Lake City, Utah.

A high-grade oil has been produced from fractures in the Mancos shale section of the Rangely field for many years. A study of these fractures reveals that they belong to two distinct systems: a predominant system trending northeast-southwest part way across the field, and a subsidiary system situated south of and parallel with the axis of the fold. These fractures can be related to axial bending and arching in the Rangely anticline. Production in the Mancos shale section of this pool is entirely dependent on sustained openings in the fractures. The quantity of oil produced is small in comparison with that derived from the Weber sandstone of this field, but the Mancos pool has produced in excess of 4,500,000 barrels of oil.

15. BEAVER CREEK FIELD, FREMONT COUNTY, WYOMING.

DAVID J. EWING, Stanolind Oil and Gas Company, Denver, Colorado.

The Beaver Creek field is located in Fremont County, Wyoming, approximately 14 miles south-