

is dolomite, argillaceous dolomite, and shale. The thickness of the Niagara varies from 66 feet in Kent County in southwestern Michigan to more than 700 feet in Mackinac County in the Northern Peninsula of Michigan. The Niagara increases in thickness southward from Kent County, Michigan, to 425 feet in northwestern Indiana near the area of outcrop. The sequence of Niagara rocks in southern Michigan is thin due to non-deposition of pre-Salina erosion. Outcrop and subsurface data indicate that pre-Salina erosion occurred in some areas. Local variations in thickness are due in part to reefs which in places are numerous. Niagara rocks dip at the average rate of 45 feet per mile from the outcrop area in northern Indiana to the center of the Michigan basin in Clare and Gladwin counties, Michigan, where the top of the group is more than 9,000 feet below sea level. The average dip per mile from the outcrop area in the Northern Peninsula to the center of the basin is approximately 70 feet per mile.

22. R. H. WOLCOTT,* Sohio Petroleum Company, Mt. Pleasant, Michigan, "Coldwater Field, Isabella County, Michigan."

The Coldwater field, discovered in August, 1944, is in the central part of the Lower Peninsula of Michigan, a few miles west of the center of the Michigan structural basin. The principal producing zone is the Rogers City (Devonian) dolomite. A typical Rogers City dolomite field, it has a producing closure of 55 feet covering an area of 3,160 acres. A greenish amber oil of 48° A.P.I. gravity is produced from an average depth of 3,750 feet. The reservoir is a structural trap, anticlinal in nature, the major axis striking northwest-southeast parallel with the major axis of the basin and modified by a strong cross-fold at right angles to the major axis. An important reserve in the Michigan area, the original oil in place was estimated as 43,000,000 barrels, and the expected ultimate recovery more than 5,000 barrels per acre.

On the same anticlinal structure, at an average depth of 1,400 feet, the Michigan series 'Stray' sandstone (Mississippian) forms a reservoir for dry gas with a productive area of 2,400 acres.

The limits of the producing area are well defined and little drilling is foreseen for the future.

* The writer thanks T. S. Knapp, geologist, and the production department, Sohio Petroleum Company, for their contribution to this paper.

23. JOHN G. GROHSCOPF, assistant State geologist, Rolla, Missouri, "Zones of Plattin-Joachim of Eastern Missouri."*

Examination of cable-tool cuttings from water wells has resulted in the establishment of four zones in the Plattin and two zones in the Joachim. The zoning is based on lithologic character and insoluble residues. A cross section through fourteen selected wells extending approximately 300 miles, from Kirksville in northeast Missouri to Cape Girardeau in southeast Missouri, indicates the position and thickness of the zones where present.

At Cape Girardeau the Plattin is 600 feet thick and the Joachim is 250 feet thick. In the type areas, approximately 75 miles northwest, the Plattin and the Joachim are each only 200 feet thick. In northeast Missouri, in the vicinity of Kirksville, both formations are overlapped by the "Decorah," where the latter rests on the St. Peter. The cross section indicates that older beds are overlapped from southeast to northwest and suggests an unconformity at the base of the "Decorah."

Some of the subsurface zones have been located at the outcrop of widely separated localities and can be used in surface mapping. Redefinition of the Plattin-Joachim boundary is desirable. The name Rock Levee, derived from a place of that name approximately 3 miles southwest of Cape Girardeau and near the intersection of Federal Highways 25 and 61, is proposed for the rocks lying between the redefined Plattin and Joachim. The term "Decorah" as used in Missouri requires more specific definition.

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24. JOHN T. ROUSE, Magnolia Petroleum Company, Dallas, Texas, "A Challenge to A.A.P.G. Research."

Last summer the A.A.P.G. research program in sedimentology was presented for the consideration of the A.P.I. advisory committee on fundamental research. After due deliberation that committee recommended that the A.P.I. should sponsor specific projects within that portion of the program dealing with the origin and early diagenesis of sediments and their contained fluids.

The A.A.P.G. research committee has been holding all projects in abeyance until the A.P.I. decided which portions of the sedimentology program they wished to consider. Now the A.A.P.G. is free to go to work on any or all of the programs dealing with pre-Pleistocene sedimentary rocks.

The most important question before us is—What is the A.A.P.G. going to do? The committee feels that the Association now needs the cooperation of all local geological societies in formulating and completing a constructive and concrete attack on that part of the sedimentology program which