

Deposition of Evaporites in the Michigan Basin

by
L. I. Briggs
University of Michigan

ABSTRACT

The Upper Silurian Cayugan evaporite rocks make up about one-third of the total Paleozoic stratigraphic section in the Michigan Basin. In the middle of the Basin more than 75 per cent of the Cayugan section is rock salt. Thus, a major thickness of rock strata is represented by the salt deposits.

The evaporite rocks are a rather simple mineralogical combination of calcite, dolomite, anhydrite and halite, with minor amounts of celestite, quartz, pyrite. Traces of the bittern salts have been found, but these are extremely rare.

Deposition of the evaporites is the resulting phase of sedimentation that began with the growth of the Niagaran reef embankment around the rim of the structural Michigan Basin, which restricted circulation of ocean brine between the sea in the Michigan Basin and the open ocean outside of the reef platform. The distribution of the mineral facies outlines the general features of the salt basin, the marginal reef platform, and passes through the reefs through which the ocean brine flowed into the interior sea. This paleogeography is supported by the distribution pattern of Ca/Mg ratios, and thicknesses of dolomitic shale, and total carbonate rock of the late Niagaran and of the Cayugan.

Since the substance of Dr. Briggs' talk has already been published only the abstract and references will be included here.

REFERENCES

- Alling, H. L., and Briggs, L. I., 1961, Stratigraphy of Upper Silurian Cayugan Evaporites: Amer. Assoc. Petroleum Geologists, Bull. 45, pp. 515-547.
- Boudouris, J., 1955, A Lithofacies Analysis of Bass Island and Salina Formation in the Michigan Basin: Univ. of Mich., unpub. MS thesis.
- Briggs, L. I., 1957, Quantitative Aspects of Evaporite Deposition: Mich. Acad. Sci. Papers, 42, pp. 115-123.
- Briggs, L. I., 1958, Evaporite Facies: Jour. Sed. Petrology, No. 28, pp. 46-56.
- Briggs, L. I., and Lucas, P. T., 1954, Mechanism of Salina Salt Deposition in the Michigan Basin: (Abs.) Geol. Soc. American Bull. 65, p. 1233.
- Lucas, P. T., 1954, Environments of Salina Salt Deposition: Univ. of Mich., unpub. MS thesis.