An Experiment to Define the Strain Redistribution at Surface Caused by a Growing Cavity at Depth[1]

C. L. Emery
C-I-M Consultants Ltd.,
Queen's University,
Kingston, Ontario

ABSTRACT

The Brine Cavity Research Group has for some years been concerned with the problems of monitoring the growth of a brine cavity and the attendant rock movements. During 1963 and 1964 a part of the experimental work was done at the Jackson Street Brinefield of the Diamond Alkali Company at Painesville, Ohio, and at the nearby Fairport Mine of the Morton Salt Company.

This portion of the work was an attempt to monitor the cavity growth by monitoring the changes in the strain pattern, caused by the cavity, in the overburden. The strains were measured by a system developed by C-I-M Consultants Ltd. for use in the surface stratum.

The results obtained by C-I-M Consultants Ltd. were checked in part by two sonar logs of the upper portion of the cavity and by calibration of the technique over a working area of the Fairport Mine.

The results are given and some discussion of the theory is included.

[1] Paper not available for publication.