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## Stylolites in the Burlington Limestone near Kinderhook, Illinois

John C. Frye  
*State University of Iowa*

Ellis H. Scobey  
*State University of Iowa*

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was in the form of the deposits connected with the great Capitan barrier reef-ridge, reaching unbrokenly from Trans-Pecos, Texas, northeastwardly, nearly to the Nebraska line. If the trend of this reef-rock were projected onward, it would pass near Omaha, and Fort Dodge. In New Mexico, Texas, Oklahoma, and Kansas, the reef-rock is preserved intact for reason of being buried deeply in a broad frontal syncline of the Rocky mountains. Northeastward, if it really ever existed there, it appears to have been naturally entirely removed through Tertiary planation. In Iowa a remnant seems to have escaped destruction because of being a part of a down-faulted block.<sup>3</sup>

Yet, the Reef theory does away with most of the usual notions concerning the age and origin of the gypsum, and the great Gueda salt-body of the Southwest, serves as a directrix, or precise datum-plane, for stratigraphic correlation. The age of the Dodge deposits would therefore be Carboniferous, the succeeding lagoonal sedimentation to the Missourian series,<sup>4</sup> not to the coal measures.

<sup>3</sup> Proc. Iowa Acad. Sci., Vol. XXIII, p. 109, 1916.

<sup>4</sup> Pan-American Geologist, Vol. I, II, p. 41, 1929.

DES MOINES, IOWA.

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## STYLOLITES IN THE BURLINGTON LIMESTONE NEAR KINDERHOOK, ILLINOIS

JOHN C. FRYE AND ELLIS H. SCOBEY

Well developed stylolites showing a peculiar relationship to chert occur in the Burlington limestone north of Kinderhook, Illinois. Specimens were studied by the preparation of insoluble residues of the limestone and "clay cap," and by making thin sections of the chert nodules. Stockdale's conclusion of origin by solution in an indurated rock is ascribed to for the stylolites in question because, (1) crinoid stems are fluted along the sides of prongs the same as the mass of the rock, (2) the suite of minerals occurring in the "clay cap" represents nearly a true average of the suites of minerals from the residues above and below the stylolite, (3) the chert in every case examined was prior to the stylolite formation as shown by fluting along the sides and pitting of upper and lower surfaces, and (4) the presence of systems of subsidiary stylolites which crosscut the prongs of the earlier and larger system. The thickness of the "clay cap" has little relation to the amount of material removed, as it varied up to 75 per cent soluble.

The maximum relief of the prongs closely approximates the thickness of strata removed. The chert nodules present a series from 100 per cent chert to 75 per cent calcite. The calcite occurs in large crystals with many inclusions of chert and quartz, the silicified fossils of the earlier nodules having been largely obliterated.

DEPARTMENT OF GEOLOGY,  
STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.