

1929

Recessional Stages Between the Altamont and the Gary (?) Moraines in Iowa

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Recommended Citation

Smith, John E. (1929) "Recessional Stages Between the Altamont and the Gary (?) Moraines in Iowa," *Proceedings of the Iowa Academy of Science*, 36(1), 278-279.

Available at: <https://scholarworks.uni.edu/pias/vol36/iss1/69>

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the Cambric onward. In fact there appear to be no less than three grand divisions surpassing greatly in time-span and stratigraphic extent the whole of our Paleozoics. These Montanan terranes of pre-Paleozoic age are even more clearly differentiated than Murchison and Sedgwick resolved the old Transition Class into distinctive units.

Precambrian, then, now belongs to the same category of purposeless terminology as does the catch-'em-all title Transition Class, and like the latter its use in any taxonomic sense may as well be discontinued, lost, and forgotten.

DES MOINES, IOWA.

THE EASTERN MARGIN OF THE HERTHA IN MADISON COUNTY

ARTHUR GOSHORN

Evidence was presented that The Hertha extends further east than has heretofore been reported.

WINTERSET, IOWA.

RECESSIONAL STAGES BETWEEN THE ALTAMONT AND THE GARY (?) MORAINES IN IOWA

JOHN E. SMITH

Immediately following the time that the Altamont moraine was formed there was an intermittent retreat of the Wisconsin ice sheet to the position of the Gary (?) about fifty miles north-northwest of Des Moines. In Story county the distance between these moraines decreases to about thirty miles and northward from Story county it becomes as small as twenty miles in some places.

Between the Altamont and Gary (?) moraines there are about twenty small recessional ones spaced with some degree of uniformity about one to two miles apart in Story county. They are less widely separated northward and more widely separated in a south-westerly direction. On the south and west borders of the Wisconsin area, the moraines formed during halts are not so prominent as on the eastern margin.

The small recessional moraines consist of low ridges varying in height and in width. They appear as broad low swells in some places and can be distinguished only with difficulty in others. In

some localities kames and other small hills located on and near these moraines aid in identifying them.

In many places parts of these moraines have been removed by erosion and in other places they are partially obscured by the influence of pre-Wisconsin topography.

IOWA STATE COLLEGE,
AMES, IOWA.

OIL STRUCTURES IN IOWA

CHARLES KEYES

The smooth, illimitable prairies of our state offer to the public little encouragement for prosecuting systematic search for such forms of mineral wealth as natural gas and rock-oil. Yet, the possibilities are never absolutely negative; they are not nearly so hopeless as layman may imagine. On this score the bed-rock structures have a tale to tell that is a very different story from what might be ordinarily expected of so featureless a country. Before its prairies came lofty mountains, both within the present limits of the state and without in surrounding territory. Even the effects of the distant Rocky Mountains upheaval reach eastward to us, the arching of the Ozarks leaves noticeable traces with us, and the Black Hills come down to our very doors.

With recent analysis, in a somewhat preliminary way to be sure, of neighboring tectonics which also affect our state more or less appreciably, numerous instructive features reveal themselves. Profound faults, notable foldings some of which are broad and gentle, others sharp and local, anticlines of measurable amplitude, and domes are with us. Many of these have sufficient development to have direct bearing upon the possibilities of our possessing fuel and power resources which might turn out to rival our immense coal deposits. At least the prospect is sufficiently promising to warrant renewed and intensive attack upon the theme.

DES MOINES, IOWA.

FORAMINIFERA IN THE IOWA DEVONIAN

A. O. THOMAS

These microfossils were found in screenings obtained by washing some ~~some~~ ^{some} ~~shales~~ ^{shales} from the ~~the~~ ^{the} ~~Co~~ ^{Co} member of the Upper