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Ancient Iowa Orogenics and Their Present Day Impress

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until oil-prospecting develops so extensively in Kansas especially. Long before these oil demonstrations the pre-Cambrian crystalline basement is discovered to exist at the Missouri River much nearer to the surface than is previously thought possible. The history of this investigation is so recently given that the memoir itself may be referred to for full particulars.

Passing for the nonce the finding of the crystalline complex at Kansas City, in 1891, we may note the great "granite" ridge buried beneath the coal measures about 100 miles to the west of the river, and extending northwardly to Pawnee City and Omaha, Nebraska. This is not the old Siouan arch, which is of later date, this one being of Carbonic, while the other is of Triassic age. But it may be an important factor accounting for the petering out of the Silurian strata in northwestern Iowa. This old Nemaha range, as it is called, is now a site of great oil-fields in Kansas. Whether the same will ever be true of Nebraska and northwestern Iowa is a question.

The possibility of the existence of other great Cordilleran folds, planed off in Carbonic times, between the Nemaha ridge and the present Front range of the Rockies, is also a big problem yet awaiting solution.

ANCIENT IOWA OROGENICS AND THEIR PRESENT-DAY IMPRESS

CHARLES KEYES

Except they be trained geologists few Iowans there are who would ordinarily think of looking for mountains in the smooth, illimitable prairies such as characterize this state of ours. Yet the evidences are many and plain, not only of the effects of mountain-making activities, but of the mountain roots themselves traversing quite across our domains. Amongst the latter are, indeed, indubitable traces of at least one mountain range that once reared its walls as loftily, as imposingly, and as majestically as do to-day the Rockies above the Colorado plain.

Some of these orographic features, of course, are readily discernible at the surface of the land; but others, and the majority, are made to reveal themselves only through the most painstaking calculations and comparisons of underground stratal data. The deep-well records gathered in Professor Norton's study of the artesian waters supply other evidences obtainable in no other way. It is to some of these more or less unfamiliar evidences of moun-

tain-building, where all now is plain, that attention is here particularly directed.

Whether there are, indeed, any traces of the great Appalachian revolution and uprising revealable in Iowa, as Rogers¹ contends upon purely speculative grounds, may be doubted. But we may see reflected in our strata the influences of Rocky Mountain foldings, of ancestral Rockies, of Ozark uplifting, and of the Labradoran Canadian Shield bulging; to say nothing of the magnificent Siouan range of Triassic times. Each of these finds elaboration well worth while, analysis and description.

¹ Proc. Geol. Soc. London, Vol. II, pp. 103-106, 1858.