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The Geology of Greene County, Iowa

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supercentrifuge, complete chemical analyses, X-ray analyses, microscopic study and base exchange determinations. Work, to date, suggests that the colloidal portions of the two materials differ in their mineralogical character; one apparently containing as its principle clay mineral, illite, the other, a mineral of the kaolinite group.

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SOME QUARTZITE PEBBLES

CHARLES CARTER

Near Luverne in Southwest Minnesota a ledge of quartzite extends northeast to southwest for a few miles. At one point along this ledge a quarry not now in operation has left an almost perpendicular face of some fifty feet. In this face are found crevices of varying widths. In one width of 8 to 12 inches and running back an undetermined distance, angular fragments of quartzite were found. Among them some rounded pebbles were obtained. The feature called to your attention is the symmetrical form and the highly polished surfaces of these pebbles. The surfaces of some are nearly as well polished as that on the quartzite in Gitchie Manitou Park in Northwest Iowa. The polishing there has been attributed to the work of the wind carrying fine sand or soil. The pebbles from the crevice show no glacial scratches or markings. Some water, especially that of melting snows, may be a factor in the polishing. But the chief cause is probably the wind carrying fine particles and circulating through the crevice.

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THE GEOLOGY OF GREENE COUNTY, IOWA

WILFRED B. TAPPER

A layer of Wisconsin drift ranging up to 150 feet in thickness mantles the better part of the bedrock surface of Greene County.

The shales and coals of the Pennsylvanian Des Moines series are limited to three townships in the southeastern part of the

county. The sections are small and difficult to place in the stratigraphic column, due to the absence of key horizons. Access to strip pits and test hole records has aided in an interpretation of Cherokee sedimentation. The absence of limestones and marine shales indicates that conditions were continental; typical cyclothems are absent. Difficulty in tracing individual units points toward a basin or lagoon type of deposition.

The eastern half of the county has been mapped as Cretaceous, and 20- to 40-foot exposures of Dakota sandstone may be found in the northeastern part, especially along the upper part of the Raccoon River.

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THE PLEISTOCENE GEOLOGY OF AUDUBON COUNTY, IOWA

W. HERBERT YOHO

The entire surface of Audubon County is covered with a thick deposit of glacial drift, loess, etc. Erosion has not been great enough in any part of the county to expose indurated rock.

Two glacial stages are represented in the drift deposits—the Nebraskan and Kansan. Loveland and Peorian loesses overlie the drift. The Nebraskan is the thicker of the drift deposits. Several wells have been drilled to or through basal Nebraskan sand, and thicknesses of Nebraskan drift of 250 to 350 feet are not uncommon. The top of the Nebraskan can be easily determined where the Nebraskan gumbotil outcrops. The outcrops of Nebraskan gumbotil are numerous in nearly all parts of Audubon County. The average thickness of Kansan drift is 55 to 60 feet. A thin deposit of Loveland loess overlies the Kansan gumbotil in places. Nearly the whole land surface is mantled with a deposit of Peorian loess ranging in thickness from a few inches to 30 or more feet.

In preparing the detailed Pleistocene map of the county, the contact between Nebraskan and Kansan deposits was drawn on the basis of the Nebraskan gumbotil outcrops and the relationship of the Nebraskan gumbotil level to the present topography.

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