

HEATING OF A DIELECTRIC IN A CONDENSER—Preliminary note. By ALBERT P. CARMAN.

PRELIMINARY NOTES ON THE GEOLOGY OF DEARBORN COUNTY. By A. J. BIGNEY.

The geological formations in Dearborn county are the lower silurian which is found in almost every part of the county, the upper silurian occupying only a small area in the northwest part of the county and the glacial deposit of the post-tertiary times. Blue limestone is the characteristic rock. The rock is abundantly supplied with fossils, much of it being composed almost entirely of brachiopods, corals and other closely related fossils. On this account they are of little value for building purposes, the chief use being for foundation stones. Some of the hardest will weather very perceptibly in only a few years. Along the railroad at Moore's Hill, the rocks are so easily disintegrated that the cliffs appear more like immense shell banks than true rocks.

In the northern part of the county, near the upper silurian outcrop, the rock is much harder and is quarried in considerable quantities, and is regarded as a very fine quality of stone. It, however, is not equal to that which is found in Ripley and Decatur counties. Where there is no drift the soil is marly—that is, composed of lime, clay, sand, etc. In the greater part of the county and especially in the western section there is much clay; on the flats this is very tenacious. In the eastern part of the county along the Ohio drift deposits are very prominent. There is some drift at Newtown, near Lawrenceburgh, but the most important deposits are just outside the county, in Ohio county, and where it is about fifty feet thick and three miles below Aurora on the Kentucky side, above and below Wolper creek. About five miles further to the south in Boone county, Ky., still more drift is to be found. This last deposit is about on a level with the highest part of the cliff, that is, 1,000 feet. The drift at the mouth of Wolper creek, called Split-rock, is an immense mass of conglomerate fully 100 feet thick and nearly 400 feet lower than that five miles to the south. There is one perpendicular cliff that measures 73 feet high, and above this there is a rise of about 20 feet more, and how deep it extends no one has investigated. About one-fourth mile to the south, on the opposite side of a small creek, is still more deposit and one cliff is even higher than the one just described.

In the lower part of this drift, which is finer than the upper drift, gold has been found, more particularly, however, on the Indiana side.

The fossil remains in the county are rich, and a fuller report may be given at some future time. Only a few can receive our attention in this paper. Near Aurora and Lawrenceburgh numerous bones of the mastodon and mammoth have been found. The bones of a sloth and the skull of a black bear have also been found, and a few other mammals. Brachiopods, crinoids, trilobites, mollusks, bryozoa, corals, etc., are found in great abundance. The trilobites are not so numerous as they used to be, for most of the specimens have been collected—that is, the surface specimens. While exploring a mound four miles north of Moore's Hill several large specimens of the coral, *tetradium fibratum* were found. One of them required four men to place it in the wagon. One little ravine seemed to be literally filled with it. Prof. Gorby pronounced these the finest specimens of the kind in the state. They are now in the museum at Moore's Hill College.

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THE CYSTIDIANS OF JEFFERSON COUNTY, IND.—By GEO. C. HUBBARD.

These fossils form an order of the crinoids, and are most abundant in the Niagara group. About thirty species, up to this time, have been found in Jefferson county, which proves it to be the richest locality in this respect in North America, if not in the world. Fifteen new species will be described and figured in the 17th report of the Geological Survey of Indiana, most of which, if not all, were collected by Mr. John Hammel. Those found belong to the genera *holocystites*, *caryocrinus* and *allocystites*. These fossils are uniformly found in shale or soft limestone, near the bottom of the Niagara group. Near Madison few have been found and these are in poor condition; but along Big creek, in the northern part of the county, they are more numerous and are well preserved. On two or three occasions I had the pleasure of accompanying Mr. Hammel to Big creek. Numerous other fossils were found, but few cystidians. If an experienced collector finds two or three good specimens in a day's search he may consider himself fortunate. A few are found in the debris at the base of the low cliffs or in the bed of the creek; more are obtained, however, by moving along on hands and knees and closely examining the various strata known to contain them, as well as the bottom of the projecting rocks above, for they are often found adhering to the lower surface of certain strata.