

NOTES ON THE AREAL GEOLOGY OF HANCOCK COUNTY.

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Throughout the greater part of Hancock County, the superficial members of the Wisconsin drift are composed of silt and clay, with a variable, but rather low proportion of sand and stony material. As revealed in excavations for buildings, deep ditches and exposures along the creeks, the slightly altered till is a light grayish yellow, or yellowish gray silty clay, hard and firmly cemented but not compact. It tends on incipient weathering to develop irregular joint plains, and to separate into rather rudely angular fragments, while the immediate surface of exposures assumes a fine crumbly condition. The unaltered material possesses a considerable degree of porosity, due perhaps, to the inclusion of some coarse sand, and the flocculating effect of lime upon clay. This may account for the brownish and yellowish stains observed in fresh excavations 10 or 12 feet deep. This till is certainly less dense than some of the late Wisconsin drift of southern Steuben and northern DeKalb counties, where soil surveys revealed heavy, light colored till as the parent material of silty soils, which have very heavy subsoils.

In this heavy Hancock County drift, limestone fragments, bits of a dark, thinly laminated shale, and fine grained sandstone are quite abundant, as well as a considerable variety of harder minerals, in which quartz and chert predominate. Large coarse grained granites are not common, nor are gneisses and schists much in evidence, either as boulders or small stones. Free lime has very generally been leached from the clayey till to a depth of 30 or 40 inches, and to slightly greater depths, wherever the materials have a sandy texture.

With the exception of Blue River, the streams are either improved ditches or only fair sized creeks, with north-south courses. Above Greenfield the Brandywine of "Old Swimming Hole" fame is little more than a big natural ditch struggling to create a little real alluvium of its own. Below the town it assumes the dignity of a small river, chiefly by reason of having inherited a ready-made valley. Leverett expresses the opinion that this valley is the lower part of that great glacial water course extending from Grant County straight southward across all present day divides and stream valleys nearly to White River. Just below the entrance of Brandywine Creek into this old glacial waterway, there are gravel terraces to the east of the Brandywine, which are far more extensive than any others along its entire course. These gravel deposits seem to block the entrance to another glacial valley, extending southeast to Blue River. If the Brandywine could cut through these terraces it would have a ready-made short course of about four miles to Blue River, instead of its present one of about 15 miles.

Another of these abandoned lines of glacial discharge parallels Sugar Creek from a point below the National Road to the southern boundary of the county. Its northern end has been captured by Sugar Creek and is being brought into topographic adjustment with the rather deep valley of the creek.

A number of other ancient valleys are easily traceable on our soil map. They have a direct course and comparatively uniform width, which is in striking contrast with the erratic wanderings and the irregular outlines of the purely structural depressions. In all instances these old time waterways have gravelly bottoms, upon which from three to six feet of dark, rich soil has accumulated.

Terraces, composed of glacial gravels occur on each of the streams with the exception of Nameless Creek. On its upper course, which is little more than a winding ditch, gravel underlies its channel and deep pits furnish much good road material. Below the National Road, the stream has entrenched itself to a depth of 50 to 100 feet in heavy clayey till, with a few accumulations of gravel against their lower slopes.

Down in the extreme southeast corner of the county, "where the bonnie Blue River flows on forever", valley making has progressed so far that in this region there is an assemblage of physiographic features, and a variety of topographic forms found nowhere else in the county. Without serious impairment of agricultural values, the succession of alluvial plains, level terraces, and rugged uplands, affords a relief from the somewhat monotonous expanse of till plains of the surrounding country.

Evidently this section of the Blue River Valley is carved in a deep deposit of heavy till. The steep clayey hills on the south side rise 100 feet or more above the floor of the valley, while on the southern side, beyond the gravelly terraces, similarly heavy clays and silts compose the uplands.

Two quite distinct series of terraces may be observed in this part of the valley. The older lies against the southern hills at an elevation of 30 to 40 feet above the alluvial plain, while the younger benches are considerably lower, but so irregular in extent and variable in elevation, that the lower areas are little more than gravelly swells on the present flood plains.

Of course all these benches mark various stages in the earlier history of these streams. To trace them from their limited development on the upper reaches of the little valleys in Hancock County to their wide expanse on the lower Blue River plains of Shelby County would be an interesting task, but this was quite beyond the opportunities afforded by the present soil survey.