

## CHAPTER XLVII.

### REPORT ON THE GEOLOGY OF MERCER COUNTY.

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#### SITUATION AND AREA.

Mercer county lies on the Indiana State line. Its form is that of a regular parallelogram, twenty-six miles in length north and south, and eighteen in width, embracing thirteen towns of thirty-six square miles each. It is bounded north by Van Wert county, east by Auglaize, and south by Darke.

#### NATURAL DRAINAGE.

The natural slope of the whole county is toward the north, and the small streams which take their rise between the ridges run uniformly in that direction. Encountering the ridges, they unite to form one main stream along the upper or outer side of each ridge, which then flows diagonally across the general slope toward the west or north-west, following the direction of these barriers. Thus the small streams which form the Wabash rise in Darke county or the extreme southern part of Mercer, and run north till they meet the St. John's Ridge, when they are diverted westward. Before the Wabash leaves the county it crosses this barrier near Fort Recovery, owing, probably, to the very gravelly character and the rolling surface of the Drift prevailing in that section, and then follows the natural, direct descent till it meets the Wabash Ridge. This it is not able to pass, but follows it into Indiana. It finally is carried in this way over the great watershed; or rather, the great watershed verges so far north as to appear on the other side of this ridge, allowing the Wabash to join the Ohio toward the south. A number of other streams of Mercer county are in the same way diverted westward by the Wabash Ridge. On the north of this ridge the streams have a northerly direction to their union with the St. Mary's, when, with it, they are carried along the southern side of the St. Mary's Ridge till, meeting the St. Joseph at Fort Wayne, Indiana, their united waters have succeeded in passing the ridge.

## SURFACE FEATURES AND SOIL.

The surface of the whole county is a continuous plain, and the changes of level in general are due to the inclination of the rocky floor beneath. Gentle undulations and local changes of level are, however, due to the condition of the Drift deposit. In no county in north-western Ohio has that dependence been seen more perfectly exemplified. The whole county is underlain by the same member of the Silurian age, except a small area in the north-eastern corner, which does not offer such differences of character as to permit unequal erosion by the great glacier. Yet there may be seen crossing the county three successive ridges, or belts of thickening of the Drift deposit, which rise from ten to twenty-five or thirty feet above the general level. The location and character of these ridges have been sufficiently discussed in foregoing chapters. It is only necessary to say at this place that they are believed to be glacial moraines, marking periodical resting-places in the retreat of the glacier, which was prolonged south-westward from the great St. Lawrence valley. In crossing these ridges in a southerly direction the face of the country is seen to change, not uniformly, but by successive stages, marked by the location of the ridges. That part of the county north of the St. Mary's Ridge is flat, and has a close, often damp, clay soil. That portion between the Wabash and the St. Mary's Ridges is also flat, but is characterized by several prairie tracts. It shows very rarely any gravel in the soil or stones on the surface. It is also, strictly, a portion of the Black Swamp, and has all its features. Between the Wabash and the St. John's Ridges the surface has a very noticeably rolling contour, although with some flats. The soil is sometimes gravelly. The color of the clay is somewhat lighter, and in general it is more easily subjected to perfect artificial drainage. That portion of the county south of the St. John's Ridge is still more gravelly and rolling.

## GEOLOGICAL STRUCTURE.

The only rock seen in outcrop within the limits of Mercer county belongs to the Guelph phase of the Niagara. These exposures, however, extend over the entire length of the county from north to south, and there can be but little doubt that that rock underlies the greater part of the county. It has not been seen in the eastern portion. Near Fort Recovery, section 19, it is slightly worked and burned for quicklime by Thomas Atkinson. It is taken from the bed of the Wabash. It is porous and fossiliferous, in beds of three to six inches. It is generally of a light blue color, with spots of a darker blue, weathering buff or white.

It makes a white lime of great quickness and strength. The Niagara is again seen in the Wabash, N. W.  $\frac{1}{4}$  section 33, in Washington township, on the land of John Oswald; and near the same place on the land of Seth Snyder, at the junction of the Totti Creek with the Wabash. It appears again in the Wabash, N. W.  $\frac{1}{4}$  section 22, of the same township, land of Philip Gardner. It is also said to have been formerly taken from the Wabash at Monterey for quicklime. In sections 7 and 8, Jefferson township, the Niagara rises near the surface of the Drift and is seen in a number of exposures. On the S. W.  $\frac{1}{4}$  section 7 it is worked by Dr. Walter. The stone is here similar to that seen in the Wabash at Fort Recovery. The beds are about three inches in thickness, lenticular, vesicular, fossiliferous, rapidly rusting with peroxide of iron. It finally weathers a light buff. Exposure, about three feet; dip, undistinguishable. On the S. W.  $\frac{1}{4}$  section 8 Mr. Thomas Godfrey has a quarry in similar beds for purposes of lime-burning, and has opened them to the depth of about four feet. On the N. W.  $\frac{1}{4}$  section 8 Herbert Richardson owns a quarry in the same beds. The dip here is unmistakable, and about eight degrees toward the south-west. The beds are here exposed to the depth of about nine feet, without showing much variation. In the State survey of the Wabash for ditching purposes, the surveyor reports rock struck at thirteen different places, in all cases but one covered with alluvium or Drift, sometimes to the depth of eleven feet. At a point three miles west of Celina the rock was not so covered, on land of Herbert Richardson and Sylvester Brooks. It is said to have a dip to the south. On the N. E.  $\frac{1}{4}$  section 32, Liberty township, Joseph Felver has taken stone from the bed of the Wabash. Near the State line D. W. and John Leininger have quarries in the valley of the Wabash, on opposite sides of the stream. It is here of the same character as already described, and belongs to the Guelph of the Niagara. This character of the formation prevails as far west at least as New Corydon, in Jay county, Indiana, where it is quarried and burned for lime. It is also met at Willshire, in Van Wert county, where Mrs. Ann Ramsey has burned lime and taken out stone for foundations from the bed of the St. Mary's and of a small stream tributary to it. The dip here cannot be made out with certainty. It is a porous and fossiliferous rock, in beds of about three inches, of a light blue color when freshly broken, but which soon weathers buff. On section 8, Dublin township, within the limits of the Godfrey Indian Reserve, Mr. Claiborne Work has opened a quarry in the river bottoms of the St. Mary's, disclosing the same characters of the Niagara. This quarry at the present time affords feeble opportunity to examine the formation, yet pieces which were gathered

near the opening are porous, and bleached nearly white. This stone here affords a quicklime of superior quality. Stone was formerly taken from the bed of the St. Mary's at Mendon, but the place is now inaccessible, and no inspection of its characters could be made. It is, however, believed to be the same as that seen near Shanesville, in the quarry of Mr. Work.

*The Drift*—The characters of this deposit are such as prevail throughout the Black Swamp generally, although much of the southern part of the county is more broken and gravelly. Its chief constituent is clay, which, below ten or twelve feet, is blue, but to that depth is of a yellowish or light brown color. The original color of the whole was probably blue, the brown or yellow colors being due to oxidation from above. No distinct, constant characters, or line of demarkation separating the brown from the blue, indicative of different or successive origins or deposition, have been seen in the county, nor in north-western Ohio. On the contrary, the colors have been seen to gradually fade into each other in a great many instances. This clay is usually a compact, unstratified mass, impervious to water, and embracing stones and bowlders of all sizes up to several tons weight. At Mercer, in Dublin township, and throughout a radius of four or five miles, it acts as the confining stratum for a number of artesian wells which flow from sand at the depth of thirty-five or forty feet, the water rising from five to eight feet above the surface. Such wells may be seen on the farm of Mr. J. Keith. Near Celina, on the north side of the Big Beaver River, it has afforded a great number of bowlders of the Lower Corniferous, some of which have been worked into stone for building. They are met near the surface in plowing the field. One was worked up on the land of Mr. Petre, which furnished eight or ten wagon-loads of good blocks, suitable for common building purposes. The ridges which cross the county consist of gravel and sand in glacial stratification, usually overspread by a few feet of this clay. The thickness of the Drift can not be stated. A well at Shanesville was in the blue clay, at a depth of sixty feet, without water.

#### MATERIAL RESOURCES.

The soil of Mercer county will necessarily always be the source of its greatest material wealth. It will, however, reach its highest development and yield its greatest revenue only when it has been subjected to thorough artificial drainage, and to careful and skillful tillage. Much of the county is still covered with forest, while the soil of that which has been occupied by farmers is not infrequently too damp and cold to bear a high market price. There is no doubt that the agricultural develop-

ment of Mercer county has been, and still is, retarded by the lack of railroad communication. The common roads are almost impassable in the wet seasons of the year, and the shipment of the products of the farm through the Miami Canal is not only difficult, but also expensive. Thus the income of the farm is often not pushed beyond the necessities of the occupant. Improvements are retarded, and the growth of the county correspondingly slow. The rock which underlies the county will answer for common use in foundations and walls, and will be a great convenience in the manufacture of lime for the local market. When the facilities for shipment become greater, there is no reason why the Niagara in Mercer county may not be extensively and profitably burned into quicklime. It will certainly compare favorably with any manufactured in north-western Ohio. At the present time the quarries in the Niagara at Piqua furnish most of the building stone used in the county. Gravel and sand are taken from the St. John's Ridge, near Fort Recovery, and from the St. Mary's Ridge, near Shanesville. At the latter place it is on the land of Jeremiah S. Decker. At the same place a bed of bog ore is said to occur on Squier Dilbone's land.

For brick, tiling, and common red pottery, the surface of the Drift is generally well adapted, and a number of establishments of that kind are already in existence. The following were noted in the survey of the county :

Gast and Gake, St. John's.....	Brick.
John Hargedorn, section 20, Marion township .....	Tiling.
Antony Horst, section 30, Marion township.....	Brick.
Herr Von der Bush, section 24, Granville township.....	Brick and Tiling.
Jacob Myers, section 22, Republic township.....	"
Edward Jones, section 16, Gibson township.....	Brick.
S. P. Shipley, Celina.....	"
Baker and Larner, Celina.....	"