

CHAPTER LXXVIII.

REPORT ON THE GEOLOGY OF CHAMPAIGN COUNTY.

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SITUATION AND AREA.

Champaign county lies south of the middle of the western half of the State, and is bounded, on the north, by Logan and Union counties ; on the east, by Union and Madison ; south, by Clarke, and west, by Miami and Shelby counties. Its boundaries are mostly the section lines, and its general shape is that of a rectangle, of about twenty-three miles in length, east and west, by an average width of fifteen and a half miles, north and south, including an area of about $356\frac{1}{2}$ square miles, or 228,160 acres.

The name, "Champaign," admirably expresses the character of the country ; for, although in a few places a little hilly, as a whole, the surface is very level, and made up of plains.

DRAINAGE.

Although a small part of the eastern edge of the county drains into the tributaries of the Scioto, and the waters of a still narrower strip on the west flow into small branches of the Great Miami, by far the greater part of the county is drained by the Mad River.

The main stream of Mad River, rising among the slate hills of Logan county, crosses the north Line of Champaign, at a point about one-third of a mile west of the middle, flows in an almost straight course southward, and leaves the county at a point about two miles farther west.

Mackachack Creek, escaping from Logan county, about a mile east of Mad River, flows almost parallel to it for several miles, making its junction about a mile below the north line of Concord township ; and King's Creek comes in, from the north-eastern townships, about two miles farther southward, and about one and a half miles north of the middle of the county.

These streams, rising in the highest and most rocky parts of Logan and Champaign counties, and fed by unfailing springs, are strong, constant, and rapid, furnishing many good mill sites.

South of King's Creek, Mad River receives no large branches from the east, in Champaign county, the greater part of the south-eastern townships draining into Buck Creek, which, rising in Madison county, flows across the corner of Champaign into Clarke county.

From the west, the Mad River receives three large tributaries—Gladly, Muddy, and Nettle creeks—though the latter is really two streams, Spring Creek joining it only a short distance above its mouth.

Each of these creeks has innumerable branches, which cover Harrison Concord, and Mad River townships with a net-work of small streams.

Storms, and Blacksnake creeks flow into Clarke county, before reaching Mad River.

SURFACE FEATURES.

A glance at the map will show the different character of the surface on the east of Mad River, and on the west of that stream. On the east, the long branchless streams mark prairie lands below, with narrow valleys above, and springs flowing from under the hills, while on the west, the multitude of small, crooked streams shows the swampy nature of the country.

It is in these swamps, lying on deep beds of clear gravel, that Mad River finds those stores of bright water that keep up the force of her wild stream in the driest seasons. But the valuable timber, and rich soil of these swamps, are tempting the owners to clear and drain, and in a few years the whole character of the surface will be changed.

In this liberally watered region, wells are sunk only deep enough to reach the clear gravel below the level of the river, where a full supply of water is obtained. Hence, there is among the people no knowledge of the underlying rock. In fact, there seems to be but one place west of Kingston, where stone has been found in position. In the south-west quarter of section fifteen, Jackson township, a quarry was worked some forty years ago, but it has not lately been used.

The general form of the surface of the county is that of a broad, shallow trough, lying north and south, Mad River running through the middle, and draining the main body of the land, while the edges shed their waters eastward to the Scioto, and Westward to the Miami River.

The highest and roughest lands are in the north-east corner, in Rush and Wayne townships. The south-east is largely made up of prairie, and the Western edge is composed of table-lands, deeply cut by the tributaries of Mad and Miami rivers.

SOIL AND TIMBER.

On the higher lands, the soil consists of drift, clays, and gravel, while,

in the bottoms, the gravel is buried deep, under alluvium and peaty matter.

Every township has beds of clay, valuable for brick and tile-making; and considerable quantities of those articles are made for local use.

Tile-works are in operation at several points—as Woodstock, St. Paris, and Addison.

On the higher lands, sugar, and beech trees flourish well, while the central part is more occupied by oak and hickory. Elm, poplar, and many other kinds, exist in considerable numbers, but the four genera mentioned, give character to the forest, and are typical of it.

In the north-western townships, there were, until lately, large numbers of poplar trees (*Liriodendron*), but they have now been almost exterminated.

In the south-eastern part of Mad River township is a large tract known as "Cedar Swamp," from the fine growth of white cedar, or arbor vitæ, covering it. Being too wet for the pasturage of either swine or cattle, its peculiar flora thrived unmolested, and made the place a favorite resort for botanists. But the cedars are being rapidly felled, and the swamp drained, and in a few years will disappear entirely.

The white cedar (*Thuja occidentalis*) of the swamps, and the red cedar (*Juniperus Virginiana*) of the hills, are the only conifers native to the county.

GEOLOGICAL STRUCTURE.

The Drift overlies the whole county, excepting those low lands where its own waste and the swamp growth have covered it with alluvial soil. The highest rock formation, only seen in small parts of two townships, the north-east corner of Salem and the north-west corner of Wayne, is the Huron shale or black slate. The larger shale island of Logan county sends this spur down into Champaign. Under the shale the Corniferous limestone is exposed in a few places in the same townships, and though it has only been quarried in a very small way, for local purposes, it would doubtless prove valuable if more thoroughly worked.

Southward and westward the Helderberg, or water-lime rock, has been opened in numerous places, though but one quarry, Mr. McCoursey's, in section 2, Salem township, is now worked to any extent. It was from this quarry that most of the building-stone of Urbana was taken, and much of it was used for flagging, until the better stone of Berea superseded it. The numerous "sun cracks" in the Champaign county stone interfere with its use as flagging.

The only quarry west of Mad River is in the center of Jackson township, but it has not been worked for years. The fragments of this rock

which are obtainable now, have every appearance of Helderberg, and its presence there argues that under the higher lands between Mad and Miami Rivers that formation still remains, although it was probably eroded in the valley of Mad River by the Drift, and the Niagara exposed. The most northern exposure of the Niagara is at Tremont, in Clarke county, but the conformation of the surface warrants this supposition.

The gravel in the hills and under the meadows is composed of almost every variety of rock, the limestones largely predominating, but the surface boulders are almost entirely granitic, and have evidently come from a different source and by different means.

The dividing ridge between Mad and Miami Rivers, in Adams township, and running up to Quincy, in Logan county, is especially well provided with these granitic boulders, and their angular shapes seem to show that they have been subjected to very little rolling; were wrenched from their places by frost, and transported by ice.

MATERIAL RESOURCES.

The one great source of wealth in Champaign county is, and must ever be, her unsurpassed farming lands. Nowhere east of the Prairie State can such broad expanses of meadow be found, and even Illinois can not furnish richer soils, while in the important matter of water-supply few places can compete with her. Her springs and streams are clear and strong, and her wells unfailling. Whether she uses her vast fields for pasture or for tillage, their capacity for producing wealth is unbounded. At present there seems to be a tendency to enlarge farms and devote them to grazing rather than to tillage. Whether this is wise and profitable, is a question for the political economist, and for time. Certainly the fear that many entertain, that this course will diminish population, seems to be justified by facts, the census returns showing that the population only increased by 1,490 from 1860 to 1870, while in the previous ten years the increase was 2,916, and between 1840 and 1850 the growth was 3,061.

In stone, the county is not rich, though her wealth in that direction is not fully developed. The Corniferous limestone of the north-eastern townships has scarcely been touched, and very few of the Helderberg quarries have been worked to any extent, and though, the quality of stone yet found there is not such as to justify the hope of any extensive commerce, yet there is no doubt that all local demands can easily be met, both for building stone and for lime.

Of clay, the supply is large and well distributed, and the quality is good enough for brick, drain-tile, and the commoner wares. Probably with

skilled labor much better results could be attained, but at present the number of potteries is very small, and the product unimportant.

In many of the swampy valleys quantities of marl are found, which, when burned, yield excellent lime.

The large deposits of gravel distributed through the county insure a perfect system of good roads within a few years.