

## OUTLINE GEOLOGY OF INDIANA.

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### LOWER SILURIAN.

The rocks of the Lower Silurian age, known as the Hudson River or Cincinnati group, are found in the southeastern division of the State, extending also throughout large areas in Ohio and Kentucky. They are well exposed in the bluffs of the Ohio River, extending west to the mouth of Fourteen-mile Creek, in Clark county, and form the surface rocks in the counties of Wayne, Union, part of Fayette, Franklin, Dearborn, Ohio, Ripley and Switzerland. In several of the adjoining counties to the west are exposures of Lower Silurian in ravines and deep cuts, as on the extreme east side of Clark, Jefferson, Decatur and Rush. The rocks of this formation are filled with well-preserved fossils, and, by decomposition, form a rich and highly productive soil.

### UPPER SILURIAN.

Strata of the Upper Silurian formation form the general surface rocks of the counties immediately west and northwest of those in the Lower Silurian, including Adams, Wells, Huntington, Wabash, Miami, part of Jasper, White, Cass, part of Carroll, Jay, Blackford, Grant, part of Howard, Delaware, Madison, Tipton and Hamilton, Randolph, Henry, Hancock, Rush, Shelby, Decatur, the eastern part of Marion, Bartholomew, Jennings, Jefferson, and the eastern part of Clark county. The Upper Silurian strata also extend north and northwest from these counties to the northern boundary of the State, at many points being capped by uneroded areas of Devonian age, but so deeply covered with boulder drift as to be rarely seen, and its presence is more known by test bores than by outcrops in the drift district.

Soils derived from the disintegration of rocks of this age are, as a rule, cold, heavy clays, which, when drained, produce good crops of wheat and the grasses.

## DEVONIAN.

The Devonian rocks are exposed in a narrow band, commencing, on the south, at the Ohio River in Clark and Floyd counties, and extend, thence, north and west through the counties of Scott, Jackson, Bartholomew, Johnson, Marion, Boone, Clinton and Carroll, with local exposures in Tippecanoe, Cass, White and Jasper, Miami, Wabash, parts of Shelby, Jennings, Jefferson and Jackson. From fossils collected in the drift area, to the the north and west and from test bores, it is known that Devonian rocks have been more or less eroded, but once covered much of the northern third of the State, and at many points they are still in place.

## LOWER CARBONIFEROUS OR MOUNTAIN LIMESTONE.

Rocks of the Lower Carboniferous series form the surface strata in a wide belt west of the Devonian and east of the Coal Measures, and these, for the most part, constitute the rocky exposures of the counties of Harrison, Crawford, Orange, Washington, Lawrence, Brown, Monroe, Owen, Morgan, Putnam, Hendricks, Montgomery, Tippecanoe and Benton, with parts of Perry, Floyd and Jackson. The eastern line of this belt is composed of shales and sandstones of the Knobstone group, while adjoining on the west are the great cavernous limestones of the State, so well exhibited in the southern counties, but which thin out to a few feet at the north. The soil of this district is remarkable for its growth of cereals and grasses.

## COAL MEASURES.

The rocks of the Coal Measures are found in the counties of Posey, Vanderburg, Warrick and Spencer, the western parts of Perry and Crawford, in Gibson, Pike, Dubois, Knox, Daviess, Martin, Sullivan, Greene and Clay, the western part of Owen, and in Vigo, Parke, Vermillion, Fountain and Warren, with a projection in a narrow band of Coal Measure rocks (Conglomerate sandstone), underlaid by thin beds of Keokuk limestone and Knobstone shales of the Lower Carboniferous group, extending from the northern part of Warren county, in a northeasterly direction across Benton, and terminating near Rensselaer, in Jasper county, where the Conglomerate is massive. It is probable that this projection is not continuous, but interrupted at intervals.

It is apparent, therefore, that the Lower Silurian, being the oldest rocks brought to the surface, underlie all the more recent rocks which in succession have been deposited upon or about it during the different ages of the earth's existence. A shaft or bore put down in the western part of Gibson county would pierce, in succession, all the geological formations of the State, and would show the approximate depth of each.