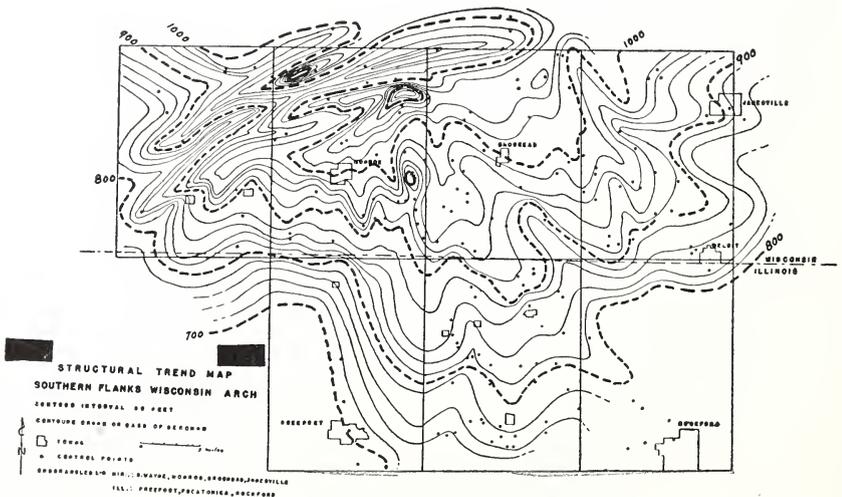


Structural Trends of the Southern Flanks of the Wisconsin Arch

C. L. BIEBER, DePauw University

Areal geological maps of southern Wisconsin show the generalized broad pattern of the uplift in central and southern Wisconsin. The irregular areal map pattern in southern Wisconsin results mainly from erosion by streams in an area of near horizontal strata. Secondary cross structures are indicated when trend maps are drawn on a definite horizon.

The horizon chosen for mapping in the present paper is the base of the Decorah formation. Structural maps are drawn on the top of the Dresbach (1), top of the St. Peter (2), and for a small area in the Monroe Quadrangle on the top of the Platteville (3). The Decorah formation is here used for mapping because the shaly facies is generally present, the formation is near the surface in the area covered, and fossils of the upper Platteville and the lower Decorah can usually be recognized. Locally Decorah lithology simulates that of the Platteville formation below, and the Galena formation above. Elevations of Platteville-Decorah contacts are estimated from contour maps. Where formation contacts are few, covered, or not recognized, known horizons in the Platteville or Galena formations are plotted, and the proper number of feet added or deducted as the case may be. A fucoidal zone in the upper Platteville is helpful as a marker, as is a dwarfed form of *Receptaculites* in the upper Decorah.



The thickness of the formations is nearly constant. Eastward the Platteville thickens slightly, the Decorah remains at about twenty-five feet thick, while the Galena thins somewhat.

Alden's areal map (4) is used as a check, and in several instances, to mark elevations of contacts where outcrops are hidden beneath the drift.

The map shows broad anticlines and synclines gently pitching away from the main axial trace. Along the northern border of the area a sharp break in the contour lines exhibits cross structure trending southwest-northeast. Probable sharp flexures or faulting is indicated. North of the area several faults are mapped (5), striking in a like direction.

References

1. Thwaites, F. T., Stratigraphy and geologic structure of Northern Illinois: Illinois Geological Survey Report of Investigations, Number 13, pp. 36-43 and map, 1927.
2. Bays, Carl A., Stratigraphy of the Platteville formation: Ph.D. Thesis, University of Wisconsin, 1937.
3. Berkley, J. P., The geology of the south half of the Monroe quadrangle: B. A. Thesis, University of Wisconsin, 1939.
4. Alden, W. C., The quaternary geology of southeastern Wisconsin: United States Geological Survey, Prof. Paper 106, map plate 1, 1918.
5. Tectonic Map of the United States, American Association of Petroleum Geologists, 1944.