

**MICHIGAN: BEING CONDENSED  
POPULAR SKETCHES OF  
THE TOPOGRAPHY, CLIMATE,  
AND GEOLOGY OF THE STATE**

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Michigan: Being Condensed Popular Sketches of the Topography, Climate, and Geology of the State by Alexander Winchell

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**ALEXANDER WINCHELL**

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MICHIGAN.

BEING



CONDENSED POPULAR SKETCHES

OF THE

Topography, Climate and Geology

OF THE STATE.

BY

ALEXANDER WINCHELL, LL. D.,

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[Extracted, by permission, from Walling's Atlas of Michigan.]

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1878.

#### NOTE.

THE author's attention, during a long residence in Michigan, was directed, both by his natural tastes and by professional duties, to the physical characteristics of the State; and, in this study, he accumulated a large fund of information which has never been published. The following papers are rather hastily prepared and incomplete abstracts of the information in his possession respecting the Topography, Climate and Geology of the State. Arrangements have been made for publishing the complete details of the Topography.

1868  
Zapovednik 1868  
5-12-12

## TOPOGRAPHY AND HYDROGRAPHY.

BY ALEXANDER WINCHELL, LL. D.

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**T**HE STATE OF MICHIGAN occupies a position approximating the centre of the continent of North America. The geographical centre of the continent is not far from the Lake of the Woods, which is 560 miles in a straight line from the centre of the State, and 260 miles from its western extremity. The centre of the State is marked by the position of Carp Lake, in Lelanau county, which is 670 miles in a straight line from New York, the nearest point on the Atlantic Seaboard. The State is limited by natural boundaries on all sides except the south. Politically,\* it has 708.5 miles coter-

\*The political boundaries of the State are defined by the following documents: Sixth Article of the Treaty of Ghent; Report of Commissioners provided by that Article, and dated June 18, 1822; Act admitting Michigan into the Union, June 15, 1836; Act

minous with the Dominion of Canada; 55.5 miles coterminous with Minnesota; 571 miles coterminous with Wisconsin; 58 miles bordering on Illinois; 129.2 miles on Indiana, and 92.8 miles on Ohio; making a total length of boundary line, amounting to 1615 miles.

The land area of the State consists of two natural divisions, known as the Upper and Lower Peninsulas, to which are attached the contiguous islands. The Upper Peninsula is bounded by portions of the lakes Superior, Michigan and Huron, the river St. Mary and the State of Wisconsin. The Lower Peninsula is embraced by lakes Michigan, Huron, St. Clair and Erie, and the St. Clair\* and Detroit rivers; and is bounded on the south by the States of Ohio and Indiana.

The main land of the State is embraced between the parallels of 41° 6' 92" and 47° 47' 8" north latitude, and the meridians of 82° 40' 7"

of April 19, 1818, Sec. 2; Act admitting Wisconsin, Aug. 6, 1846; Act of April 18, 1818, Sec. 2. For the original boundary of Ohio on the north, see Act of April 30, 1802.

\* The river St. Clair was originally named Sinclair from Patrick Sinclair, a British military officer, who purchased of the Indians, in 1765, 4000 acres of land on the river. Lake St. Clair was so named from a French officer. (American State Papers, Public Lands, Vol. 1, p. 216.)



and 90° 536 of longitude west from Greenwich. The most northerly point is the north side of Keweenaw Point, five miles west of the Light House at Copper Harbor; and the most southerly is the north-west corner of Ohio. The most easterly point is at Port Huron, near the outlet of Lake Huron; and the most westerly is at the mouth of Montreal river. The most northern territory belonging to the State, is Gull Islet, off the extremity of Ile Royale, which attains the latitude of 48° 211.

The following table exhibits the latitudes and longitudes of the principal points of the State:

TABLE OF GEOGRAPHICAL POSITIONS.

STATIONS.	LATITUDE.			LONGITUDE.		
	D	M	S	D	M	S
Detroit, St Paul's Church,	42	19	45.85	83	02	22.73
"    Congrega'l Church,	42	19	45.64	83	02	29.07
"    Intersection Fort and Griswold Sts.,	42	19	49.85	83	02	20.63
Fort Gratiot, Light House,	43	00	21.86	82	24	43.96
Pt. aux Barques, Light House,	44	01	23.35	82	47	09.87
Saginaw, Light House,	43	38	37.84	83	50	54.46
Tawas, Light House,	44	15	35.44	83	26	14.57
Mouth of Thunder Bay River,	45	03	38.90	83	25	32.63
Detour Light House,	45	57	20.11	83	54	21.71
Fort Holmes, Mackinac I.,	45	51	27.81	84	36	24.48
Waugoshance Light House,	45	47	13.38	85	04	56.83
N. E. cor. Big Beaver Island,	45	45	12.67	85	29	38.00
Sand Point, Escanaba,	45	44	35.04	87	02	25.65
Menominee,	45	05	19.31	87	35	25.20

STATIONS.	LATITUDE.			LONGITUDE.		
	°	'	"	°	'	"
Grand Haven, Court House,	43	03	47.25			
“ Lake Survey Sta.	43	03	50.14	86	14	21.30
Marquette, Light House,	46	32	55	87	22	12.45
Vulcan, near Copper Harbor,	47	26	44.25			
Ann Arbor, Observatory,	42	16	48.30	83	43	43.05
New Buffalo, Intersection of middle of Whittaker Ave. and Mechanics St.,	41	47	47.00	86	44	53.55
Niles, Steeple of Trinity Church,	41	49	46.10	86	15	36.60
Monroe, Light House,	41	53	26.77	83	19	22.29
Adrian,	41	54	26	83	59	27
Hillsdale,	41	55	19	84	33	46
Coldwater,	41	53	30	85	01	32
White Pigeon,	41	44	59	85	39	42
Ypsilanti,	42	14	12	83	37	06
Jackson,	42	14	46	84	23	01
Marshall,	42	13	38	84	56	09
Kalamazoo,	42	17	39	88	35	58
Allegan,	42	31	49	85	52	37
Lansing,	42	43	53	84	30	42
Pontiac,	42	37	44	83	17	21
Owosso,	43	00	17	84	18	21
Grand Rapids,	42	57	59	85	39	59
Muskegon,	43	13	54	86	15	51
Flint,	43	01	01	83	40	58
Tuscola,	43	19	31	83	39	20
East Saginaw,	43	26	25	83	55	43
Manistee,	44	13	41	86	18	42
Traverse City, E. end Hannah, Lay & Co's Pier,	44	45	59.74	85	36	53.11
Ontonagon, Light House,	46	52	18.35	89	18	29.46
Houghton,	47	07	15.00	88	33	27.12

The foregoing positions, as far as Vulcan, inclusive, are selected from the numerous determinations of the United States Lake Survey; Ann Arbor has been determined by the Director of the Observatory; New Buffalo

and Niles are from Col. Graham's determinations; Monroe, Traverse City, Ontonagon and Houghton are from the Lake Survey Charts, and the co-ordinates of the remaining localities have been calculated from Farmer's large sectional map of the State.

The following table exhibits the difference of time between Detroit and some important points in the State:

TABLE OF LOCAL TIME.

LOCALITIES.	Time slower than Detroit Time.		LOCALITIES.	Time slower than Detroit Time.	
	m.	sec.		m.	sec.
Port Huron,	2	30.57*	Battle Creek,	8	34.99
Pontiac,	0	59.85	Kalamazoo,	10	13.13
Monroe,	1	07.97	Traverse City,	10	18.00
Ypsilanti,	2	18.89	Grand Rapids,	10	20.39
Flint	2	34.35	Allegan,	11	20.94
Ann Arbor (Obs.),	2	45.35	Grand Haven,	12	47.90
East Saginaw,	3	33.34	Niles (TrinityCh.),	12	52.93
Adrian,	3	48.62	Muskegon,	12	53.91
Owosso,	5	03.91	Manistee,	13	05.29
Hillsdale,	5	05.55	Escanaba,	16	00.19
Jackson,	5	22.54	Marquette (L. H.),	17	18.65
Lansing,	5	53.30	Menominee,	18	12.16
Mackinac,	6	16.01	Houghton,	21	04.18
Marshall,	7	35.05	Ontonagon,	25	04.42
Coldwater,	7	56.64	Mouth Montreal River.	29	59.15

## FOREIGN LOCALITIES COMPARED WITH DETROIT.

Greenwich, England,	5 h. 32 m. 9.51 sec. faster.
N. Y. City, (Custom House,)	38 " 9.31 " "
Washington, D. C. (Observ.)	24 " 8.51 " "
Chicago, Ill. (Old Court House,)	18 " 22.34 " slower.
San Francisco, Cal.,	2 h. 37 " 23.00 " "

\* Faster than Detroit Time