

Earthquake damage minor in Michigan

Reprinted from the Natural Resources Register, newsletter of the Michigan DNR. It was prepared by Randall Miltstein, Geological Survey Division.

NO REALLY destructive earthquake has ever been documented in Michigan, but in view of our state's short recorded history, that hardly means Michigan is immune from these incidents.

Geological studies indicate that earth movement within the Great Lakes region is in progress. Such movement may, however, proceed so slowly as to be imperceptible or felt only as a light earth tremor.

Some residents of the southern Lower Peninsula were startled by an earth tremor in January of this year, epicentered approximately 25 miles east of Cleveland, Ohio. Only 34 earthquakes have had epicenters within our boundaries between 1872 and 1986, according to the records.

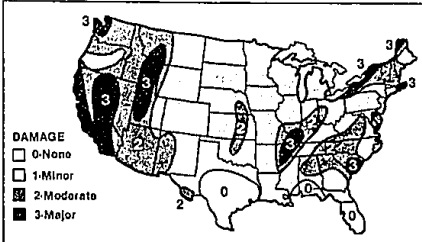
FRENCH JESUIT missionaries provided the first report of earthquake activity in Michigan in 1638. The multi-volume Jesuit Relations and Allied Documents chronicles what the Jesuits encountered in the relatively unexplored territory of "New France."

"During a tremor . . . the savages were greatly surprised to see their bark plates collide with each other and water spill out of their kettles."

The first well-documented earthquake reports from the Michigan Territory were in relation to 1811 and 1812 that shook the lower Mississippi Valley. They are usually referred to as the New Madrid Earthquake. One of the hard shocks of this earthquake came on Dec. 8, 1811.

AT WHAT IS NOW Orchard Lake, Judge James Withersell wrote down reports of local Indians that "the waters of the lake began to boil, bubble, foam and roll about as though they had been in a large kettle over hot fire, and in a few minutes came great numbers of turtles and hurried to shore, upon which they (the Indians) had a great turtle feast."

Judge Withersell has also left a personal account of the shocks felt in Detroit on Jan. 23, 1812.



"The earthquake occurred in the morning at 30 minutes past 8 o'clock as I sat reading by the fire at Col. Watson's. I felt an unusual sensation; I thought something must be the matter with me. I felt an agitation which I could not account for."

But I soon learned that the walls of the house were in motion north and south . . . I discovered that a small looking glass hanging on the wall was swinging to and fro several inches, and the shade trees in the yard were waving considerably north and south."

TWO OF THE largest historical earthquakes in the Lower Peninsula occurred near Kalamazoo in the 1800s.

While the earthquake of Feb. 4, 1853, was the larger of the two earthquakes and was felt as far away as St. Louis, Missouri, the quake of October 20, 1870, produced more written accounts. On the day after the shocks, the Kalamazoo Gazette reported events at Union School during the quake. Bells clanged wildly, mostly in the cupola, floors swayed, lamps hanging by chains swung back and forth. "In a matter of seconds, a general fright seized the students. The teachers were advised to dismiss their pupils quietly. As the older students started to leave the upper floors of the building, younger children on the lower floors panicked and ran to the nearest exit."

Damage from the earthquake, apparently, was limited to destroyed

chimneys, however, and no injuries were recorded.

THE MOST powerful and most destructive earthquakes recorded in Michigan have occurred in the Upper Peninsula.

On July 26, 1905, near Calumet, and on May 26, 1906, south of Houghton, earthquakes registering VIII on the Modified Mercalli Intensity Scale were recorded.

The Calumet earthquake occurred at 6:30 p.m. and was felt over the greater part of the Keweenaw Peninsula. It was reported that the main shock of the earthquake was heralded by a rumbling and shaking, and that an explosion was heard down as far as the 49th level. No. 4 shaft, of the Calumet and Hecla Mine.

According to the Daily Mining Gazette, "The shock was heard audibly all over the community, and occurring as it did at the supper hour, caused great consternation. There were chimneys seen falling everywhere in Calumet."

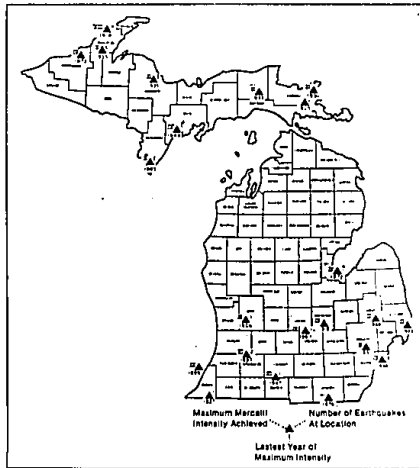
"Pewable Street south of Lake Linden Avenue seems to have been affected most. Almost every chimney fell with a crash. The O'Shea res-

idence on this street was moved from its foundation about an inch. "Plate glass windows in the stores of Martin Prish, Andrew Condon, and the one occupied by the Laurium Cooperative Company, were smashed in small places. A large skylight in the Maria Building was also broken. In Red Jacket the plate glass window in the saloon of Jake Decker was broken."

SAID THE Mining Journal, "The lower vault in the county clerk's office is perhaps the best evidence of the earthquake. When the vault was opened it was found that several hundred volumes of State reported materials stored there were lying in the center of the vault in heaps and windows.

"The books had been shaken from the shelves and those piled near the sidewalks had been overturned. County Clerk Mark Elliott says that the books were in their places when the office was closed the night previous."

After the earthquake in 1905, then State Geologist Dr. A.C. Lane, in the Houghton office of the Michigan



Geological Survey, consisting of a pencil placed point down in a box of sand. In the spring of 1906, Dr. Lane's preparations brought results.

February tremors upset the pencil several times, and on May 26, the major earthquake took place.

RAILROAD LINES were twisted and bent into an 'S' and there was notable sinking of the earth above the workings of the Atlantic mine. The area affected by the earth movement was about 30 to 40 miles in diameter. Geologists can predict the fre-

quency and magnitude of future earthquakes by region, based on earthquake reports of the past combined with present-day observation, monitoring and interpretation of certain changes in the physical state of the earth.

A seismic risk map of the United States places Michigan in Zone I, an area prone to minor damage from earthquake activity.

Undoubtedly, Michigan will experience earthquakes of varying degrees as long as the dynamic processes that formed our planet even now shape its surface.

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