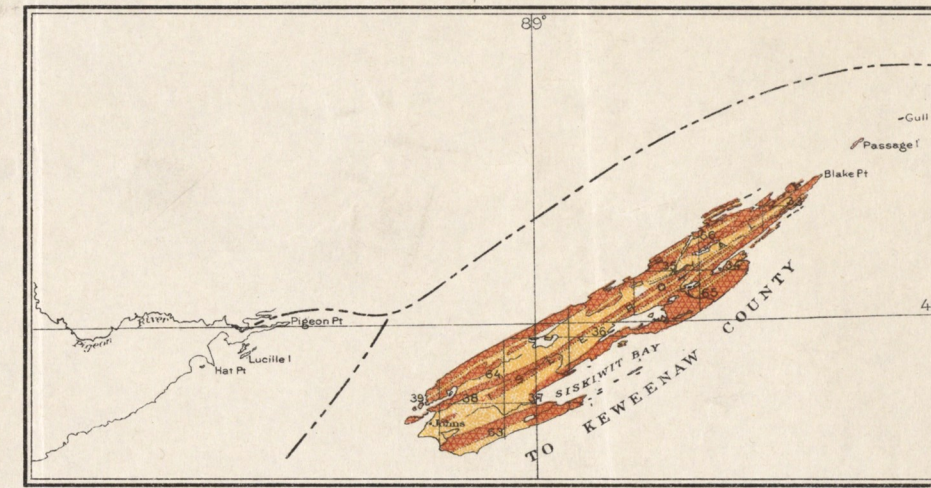
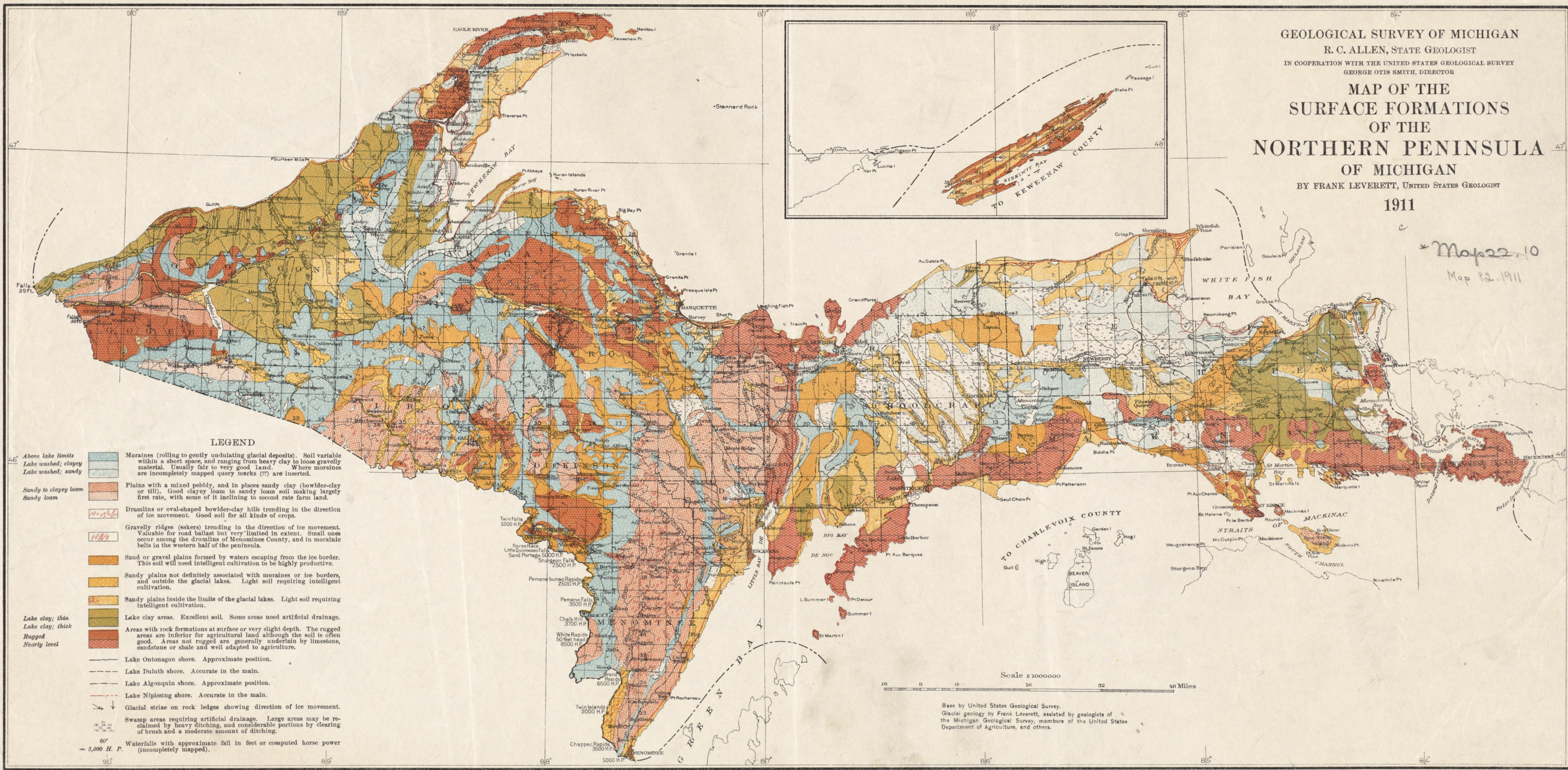


GEOLOGICAL SURVEY OF MICHIGAN
R. C. ALLEN, STATE GEOLOGIST
IN COOPERATION WITH THE UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR
MAP OF THE
SURFACE FORMATIONS
OF THE
NORTHERN PENINSULA
OF MICHIGAN
BY FRANK LEVERETT, UNITED STATES GEOLOGIST
1911



Map 22.10
Map 82.1911



LEGEND

- Above lake limits
- Lake washed; clayey
- Lake washed; sandy
- Sandy to clayey loam
- Sandy loam
- Moraines (rolling to gently undulating glacial deposits). Soil variable within a short space, and ranging from heavy clay to loose gravelly material. Usually fair to very good land. Where moraines are incompletely mapped query marks (?) are inserted.
- Plains with a mixed pebbly, and in places sandy clay (bowlder-clay or till). Good clayey loam to sandy loam soil making largely first rate, with some of it inclining to second rate farm land.
- Drumlins or oval-shaped bowlder-clay hills trending in the direction of ice movement. Good soil for all kinds of crops.
- Gravelly ridges (eskers) trending in the direction of ice movement. Valuable for road ballast but very limited in extent. Small ones occur among the drumlins of Menominee County, and in moraine belts in the western half of the peninsula.
- Sand or gravel plains formed by waters escaping from the ice border. This soil will need intelligent cultivation to be highly productive.
- Sandy plains not definitely associated with moraines or ice borders, and outside the glacial lakes. Light soil requiring intelligent cultivation.
- Sandy plains inside the limits of the glacial lakes. Light soil requiring intelligent cultivation.
- Lake clay areas. Excellent soil. Some areas need artificial drainage.
- Areas with rock formations at surface or very slight depth. The rugged areas are inferior for agricultural land although the soil is often good. Areas not rugged are generally underlain by limestone, sandstone or shale and well adapted to agriculture.
- Lake Ontonagon shore. Approximate position.
- Lake Duluth shore. Accurate in the main.
- Lake Algonquin shore. Approximate position.
- Lake Nipissing shore. Accurate in the main.
- Glacial striae on rock ledges showing direction of ice movement.
- Swamp areas requiring artificial drainage. Large areas may be reclaimed by heavy ditching, and considerable portions by clearing of brush and a moderate amount of ditching.
- Waterfalls with approximate fall in feet or computed horse power (incompletely mapped).

Scale 1:100,000
0 16 32 48 Miles

Base by United States Geological Survey.
Glacial geology by Frank Leverett, assisted by geologists of the Michigan Geological Survey, members of the United States Department of Agriculture, and others.