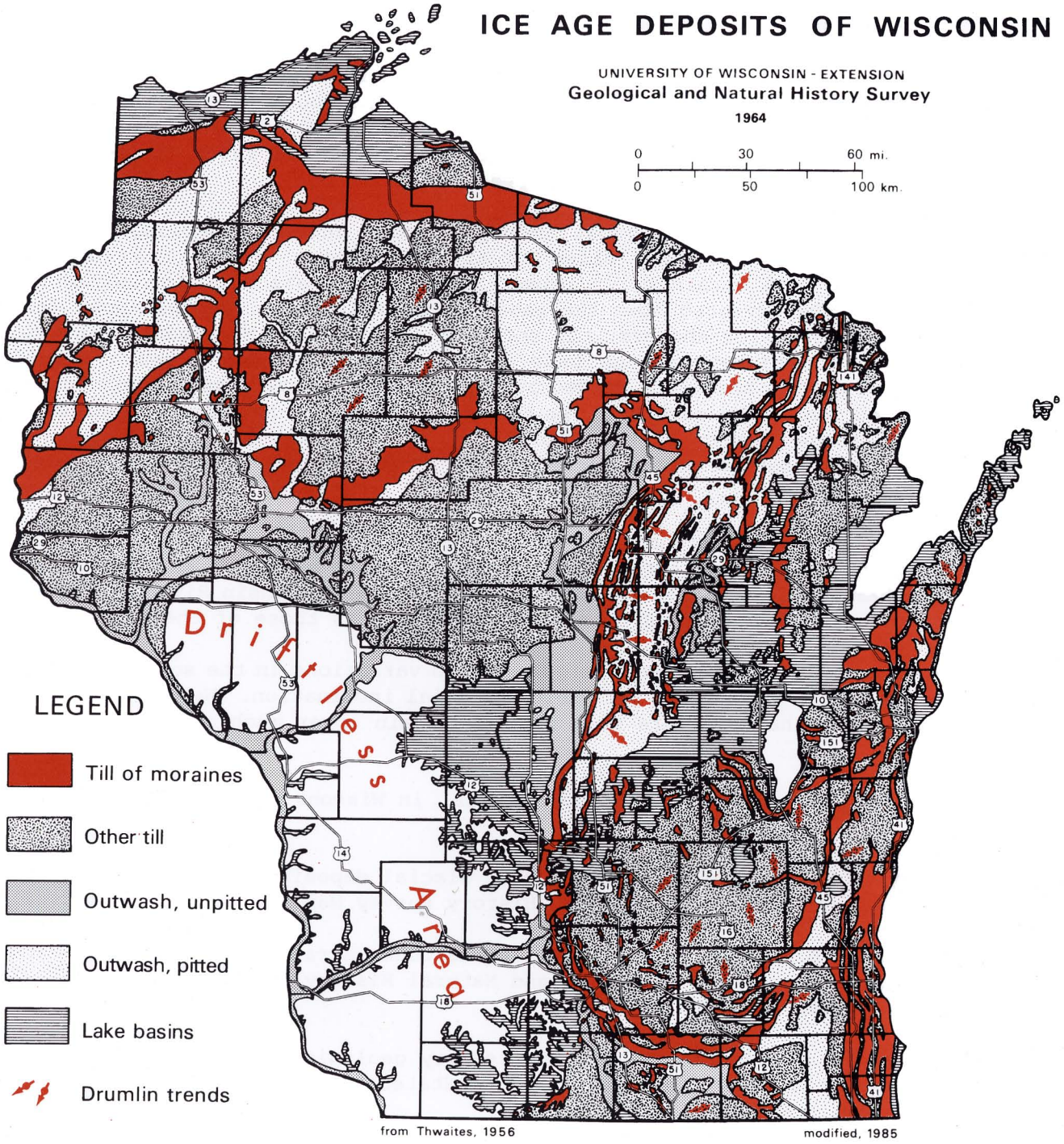
ICE AGE DEPOSITS OF WISCONSIN

UNIVERSITY OF WISCONSIN - EXTENSION
Geological and Natural History Survey
1964



from Thwaites, 1956

modified, 1985

SHORT HISTORY OF THE ICE AGE IN WISCONSIN

The Pleistocene Epoch or Ice Age began about 1,700,000 years ago which, in terms of geologic time, is not long ago. There were many separate glaciations during the Ice Age, each followed by a period when the ice sheets (except those on Greenland and Antarctica) melted away. The last major glacial episode is called the Wisconsin Glaciation, because it was first studied in detail in this state. It ended about 10,000 years ago.

The ice sheets were formed by the accumulation of snow that turned to ice and reached a thickness of two miles in some areas. The North American ice sheet formed in east-central Canada, spreading outward in every direction. The south edge of the advancing ice sheet had many tongues or lobes whose direction and rate of movement were controlled by the topography of the land surface over which they flowed and by the rates of ice accumulation in the different areas from which they were fed.

The ice sheet transported a great amount of rock and soil debris. Some of this debris, which is called till, was piled up at the margins of the ice lobes to form moraines. The pattern of moraines, in brown, shows the location of the major ice lobes in Wisconsin. One lobe advanced down the basin of Lake Michigan, another down Green Bay, and others down Lake Superior and over the northern peninsula of Michigan. The well-known Kettle Moraine was formed between the Lake Michigan and Green Bay Lobes. Drumlins are elongated mounds of debris that were molded by the ice passing over them; their orientations indicated the direction of ice movement. As the ice melted, the debris was reworked by melt-water rivers, and large amounts of sand and gravel were deposited to form outwash plains. Pits were formed in the outwash where buried blocks of ice melted, and many of these are now occupied by lakes.

The action of the ice profoundly modified the landscape, smoothing off the crests of hills and filling the valleys with till and outwash. In some places it changed the course of rivers forcing them to cut new channels such as that of the Wisconsin River at the Wisconsin Dells. Elsewhere it dammed valleys to create lakes such as those of the Madison area.

The Pleistocene glaciations were largely due to variations in the solar energy reaching the earth as a result of changes in its orbit and axial inclination. We are still in the Ice Age, and it is likely that glaciers will grow and again cover much of Wisconsin in future millennia.

More detailed information on Ice Age material in Wisconsin is given in the following publications.

Hadley, D.W., and Pelham, J.H., 1976, Glacial deposits of Wisconsin: Wisconsin Geological and Natural History Survey Map Series No. 10.

Mickelson, D.M., and others, 1984, Pleistocene stratigraphic units of Wisconsin: Wisconsin Geological and Natural History Survey Miscellaneous Paper 84-1, 15 p.

Goebel, J.E., and others, 1983, Quaternary geologic map of the Minneapolis 4° by 6° Quadrangle, United States: U.S. Geological Survey Map I-1420(NL-15).

Farrand, W.R., and others, 1984, Quaternary geologic map of the Lake Superior 4° by 6° Quadrangle, United States and Canada: U.S. Geological Survey Map I-1420(NL-16).

Lineback, J.A., and others, 1983, Quaternary geologic map of the Chicago 4° by 6° Quadrangle, United States: U.S. Geological Survey Map I-1420(NK-16).

Revised November 1984