of the ice-sheet (then at its largest), we find that it goes southward, perhaps nearly as far as the junction of the Ohio with the Mississippi, sweeping westward into Kansas, and then probably turning northward through Nebraska and Dakota, but keeping to the west of the Missouri River.

The inner or second terminal moraine is well developed in the southern part of the State of New York, lying well to the north of the first moraine, and much more irregularly distributed. Southwestward the two series of ramparts unite at the sharp bend of the older ridge just mentioned, and continue as one into the centre of Ohio. This junction probably indicates that the southern edge of the ice at the time of the second moraine, though generally keeping to the north of its previous limit, reached its former extent in northwestern Pennsylvania, and united its débris with that left at the time of the greatest extension of the ice-sheet. From the middle of Ohio, the younger moraine pursues an extraordinarily sinuous course. One of its most remarkable bends incloses the southern half of Lake Michigan, which was the bed of a great tongue of ice moving from the north. Immediately to the west of this loop there lies an extensive driftless area in Wisconsin and Minnesota. The course of the moraine bears distinct witness to the independent direction of flow of the united glaciers that constituted the great ice-sheet. It sweeps in vast indentations and promontories across Wisconsin, Minnesota, and Iowa, forming probably the most extensive moraine in the world, and strikes northwestward through Dakota for at least 400 miles into the British Possessions, where its further course has been partially traced. The known portion of the moraine thus extends with a wonderful persistence of character for 3000 miles, reaching across two-thirds of the breadth of the continent.[46]

In the non-glaciated regions evidence of the presence and influence of the ice-sheet is probably furnished by high alluvial terraces, which could not have been formed under the present conditions of drainage. From this kind of evidence it is believed that when the ice-sheet crossed the Ohio River near Cincinnati, it ponded back the drainage of the entire

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[46] T. C. Chamberlin, "Preliminary Paper on the Terminal Moraine," Third Ann. Rep. U. S. Geol. Survey, 1883. Every student of glacial geology ought to make himself familiar with this admirable summary. Consult also G. M. Dawson, "Report on 49th Parallel"; F. Wahnschaffe, Zeitsch. Deutsch. Geol. Ges. 1892, p. 107; J. B. Tyrrell, Bull. Geol. Soc. Amer. i. 1890, p. 395, describes the terminal moraines in Manitoba and the adjacent territories of N.W. Canada.