

After the final emergence from the sea was accomplished, the country assumed somewhat the same character which it has at the present time but with several modifications. The plateau west of the present valley extended farther to the east and sloped more regularly eastward while the larger channel was probably also shifted eastward to run along the face of the limestone outcrop or by a series of minor streams running parallel to it corresponding to the basins of the present lakes.

A great change in the climatic conditions next brought about important changes in the surface features and also in the distribution of the soil. Colder winters and cooler summers were succeeded by a long period of continuous winter, in which all the natural drainage was stayed and there gradually accumulated a vast thickness of snow. The area of greatest precipitation and consequent accumulation of ice and snow was at first in the country to the north. As this ice increased in thickness it began to spread slowly towards its outer margin. In this way there was a movement of the ice southward through the valley and as the movement progressed this mass of ice picked up and carried along with it much of the loose material on the surface, at the same time scoring and polishing the harder rocks, breaking off protruding points and deeply plowing along the face of the plateau of soft rocks to the west. When the valley was filled there might have been a halt to the forward movement for a time but it gradually over-rode the edge and spread to the west as far as the Coteau du Missouri and southward over Minnesota.

Warmer conditions returned and the great mass began to melt along its margin. The great amount of debris carried along with the ice was thus left in great heaps where the edge of the ice was stationary for some time or if the retreat caused by melting was rapid the surface would be more or less evenly strewn by this material which is generally called boulder-clay. As the ice melted there would naturally be a vast quantity of water to be carried away, and river channels were formed which appear now to have little cause for origin except for this emergency. Where the slope of the country was toward the ice, large lakes along its margin were formed.