

sand, other similar strata have been violently crumpled, while horizontal beds lie directly upon them. These contortions may have been produced by the horizontal pressure of some heavy body moving upon the originally flat beds, such as ice in the form of an ice-sheet or of large stranding masses driven aground in the fjords or shallow waters where the clays accumulated; or possibly, in some cases, sheets of ice, laden with stones and earth, sank and were covered up with sand and clay, which, on the subsequent melting of the ice, would subside irregularly. Another indication of the presence of floating ice is furnished by large scattered boulders, lying on the stratified sands and gravels. Though these blocks probably belong as a rule to the time of the chief glaciation, they may in some cases have been shifted about by floating ice during the submergence.

Second Glaciation—Re-elevation—Raised Beaches.—When the land re-emerged from its depression, the temperature all over central and northern Europe was again severe. The northern ice-sheet once more advanced southward, but did not again attain nearly the same dimensions. From the direction of the striæ, it would appear sometimes to have moved differently from its previous course, occasionally even at right angles to it. In the basin of the Baltic, for example, the later direction of the ice-stream appears to have been southwestward and westward. Besides the evidence of this direction furnished by striated rock-surfaces, abundant fragments of the fossiliferous Silurian rocks of Gothland are strewn over the Germanic plain even as far as Holland. There seems no reason to doubt that during this second advance of the ice the Scottish and Scandinavian ice-sheets were again united over what is now the floor of the North Sea. It was then that the upper bowl-