

THE LAST GREAT ICE SHEETS IN THE LIGHT OF PREGLACIAL GEOLOGICAL HISTORY

1AMANTOV, A.V., 2 FJELDSKAAR, W. 1All-Russia Geological Research Institute, St.Petersburg; 2Rogaland Research, Stavanger, Norway.

Reconstruction of prominent impact of huge ice sheets, which is principal for science and practical geology, remains disputable. Elements of an extensive preglacial structural basin(s) gave, at the glacial stage, rise to the central topographic basin in conditions of glacial nucleation. The elements can be defined as cells, marking archetypal characteristic of all areas that either surpassed glaciations, or bear ice sheets until present. Structural basins, which determine the cells, cannot be explained only as products of glacial loading and erosion with crust uplift, exhibiting a long-lived negative structures. Bothnian basin - the stable central zone of the Fennoscandian ice sheet - serves an example, being developed in the segment of the chain of negative structures, outlined in the Late Proterozoic and separated in relation with Caledonian events. Preglacial distribution of soft sedimentary cover and its structure seem to be very important factors, which influenced on the erosional pattern. Complex erosion removes preferably friable sediments with resulting lowering of the surface. In the central Bothnian Sea area, when comparable geological conditions occur, erosion may be of the same order (200 - 400 m) as in the Baltic - White Sea peripheral lowland, exhibiting erosional topographic low, but not a structural one. Thus erosional agents over wide areas have resembling (or at least not so different as usually conceived) joined capacities during Plio-Pleistocene stage. Processes of isostasy in connection with glacial loading and erosion are discussed.