



Is the Young Morainic Morphology really "Young"? – Ice Marginal Positions in North-East Germany.

M. Böse, Chr. Lüthgens

Freie Universität Berlin, Institut für Geographische Wissenschaften, Germany

(mboese@geog.fu-berlin.de, cluethg@geog.fu-berlin.de)

Modern geosystems within the area of the last glaciation are mainly attributed to the influence of the Weichselian inland ice and its meltwaters. For a long time the model for the landscape was the glacial series according to Penck and Brückner, modified in northeastern Germany and Poland by the ice marginal valleys (Urstromtäler). The natural resources of this area are predominantly the result of Pleistocene deposits: sand and gravel are mainly used for construction purposes, clay and till for ceramics including bricks; other natural resources used for various purposes include Holocene peat, Tertiary lignite layers, the latter close to the surface in glaciotectonic features such as push moraines, and, last not least, boulders. .

The classical morphostratigraphical units of the young morainic area are high, hilly areas, classified as end moraines, and the distal parts of outwash plains, either starting at the outer fringe of end moraines or replacing end moraines by a distinct steep proximal slope.

Sediment and chronostratigraphic studies reveal a much more complex construction of the landscape. The preexisting relief obviously had a greater influence on the present-day topography than originally interpreted. Meltwater pathways, subglacial as well as subaerial, often follow older valleys or linearly arranged depressions, whereas high-lying areas consist of either push moraines or ablation moraines, consisting at least partly of meltwater sediments of the penultimate glaciation. These results lead to a new interpretation of the landforms in relation to ice dynamics.

At least the maximum ice advance, including the Brandenburg stage as well as the Frankfurt phase, both south of the Pomeranian ice readvance, was not vigorous enough to reshape the Saalian landscape completely. The young morainic aspect is mainly due to the immature river system, the high frequency of lakes and dead ice hollows, and the meltwater channels – often including peat bogs and therefore representing a considerable number of natural reserves, and protected areas. – Meltwater is considered to have been a much more effective relief-forming agent than the ice itself. Though till was released by the Weichselian inland ice, the formation of push moraines or ablation moraines declined, and there is increasing evidence that quite a number of these landforms – in general the highest positions in the young morainic area - are of Saalian age and were only partly reshaped by the Weichselian ice.

By contrast, meltwater activity was high and Weichselian deposits are more closely related to meltwater sediments, thus representing the lower parts of the relief. Especially in the Berlin-Potsdam area, kames are frequent. The high proportion of meltwater sediments in the landscape leads to the conclusion that a non-vigorous outer part of the Weichselian inland ice covered the Saalian landscape, becoming inactive very soon and releasing meltwater and meltwater sediments. Therefore the principal features of the young morainic area at least south of the Pomeranian ice marginal position are mainly a legacy of the Saalian glaciation.