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FOSSIL TRACES OF PERMAFROST IN THE UKRAINE AND THEIR PALEOGEOGRAPHIC SIGNIFICANCE

Summary

1. The basic forms of fossil traces of permafrost contain:

(a) pseudomorphoses after frost fissures of structural soils and ice-wedges, mainly epigenetic, filling up simultaneously with their formation; epigenetic veins filled up after the ice melted and syngenetic veins in the sediments of lakes which froze down to the bottom are less frequent;

(b) frost disturbances — the traces of hummocky forms of the icing type due to ground water.

2. In the Ukraine area such phenomena can be explained only by the influence of cold climate, contemporaneous with ice-sheets of N. W. Europe.

3. "Ice-wedges" and "structural soils" in the lower parts of loess horizons point to the loess formation in the glacial periods.

4. The changes in grain-size gradation of subaerial loesses and the accumulation of upper-Pleistocene volcanic ash evidence that in the glacial periods the zone of calm shifted to the South, which was associated with the area of high barometric pressure — branches of Siberian anticyclone.

5. In the alluvia of all Pleistocene river terraces (except the inundation terrace) appear the hummocks of a type of icings of ground water which can be correlated with the frost disturbances of loess horizons.

6. Alluvial sediments in, or above, the disturbances seem quite different from the river alluvia covering the lower parts and represent the periglacial alluvium characterized by the traces of frost disturbances, poor sorting, a high content of fine sand and silt, the lack of humus, marl, peat and other sediments typical of the inundation terrace alluvia.

7. Well-known fossil traces of permafrost from the late-Pleistocene (Great Kamyšeškaya, Likhačevo, etc.) confirm the lowering of the boundary of the Anthropogene according to the suggestions of the Eighteenth International Geological Congress.