

## ABSTRACT

Sediment-filled wedges have been observed at two sites in northern Delaware. The wedges are located within the Pleistocene channel deposits of the Columbia Formation and are overlain by a layer of wind-blown silt. They are approximately 25 to 60 cm wide and 1 to 1.5 m in vertical extent. The origin of the sediment-filled wedges may be due to one of several mechanisms, each with its own set of requisite environmental conditions. The mode of transport for the wedge infill may also be due to one of several mechanisms, each with its own environmental implications. The origin of the sediment-filled wedges and the mode of transport for the wedge infill were explored using Chamberlain's Method of Multiple Working Hypotheses. A detailed physical description of each wedge, along with stratigraphic and sedimentological information was used to eliminate any wedge-forming and sediment-transporting mechanisms that could not have resulted in the formation of the wedges in northern Delaware. The grain size of sediment samples from inside and outside one wedge from each location was analyzed using U.S. Standard Sieves. The mineralogy and surface texture of each sediment sample were analyzed using a petrographic microscope. The sedimentological and stratigraphic information indicates that the wedges are most likely relict frost wedges formed by thermal contraction cracking in seasonally frozen ground and filled with wind-blown Columbia sediment.

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