

alluvial fans will form with their outer margin blending indefinitely with stream level as in the stage numbered C.

So long as the ice sheet fills the valley and covers its divides, terrace building within it is precluded. As soon as the ice has retreated it will also have thinned, and the time will come when a long tongue of ice fills the valley. Reflection of heat from the bare rock walls will cause the ice to melt most rapidly on its margins. Along these marginal depressions with rock walls on one side and ice walls on the other the drainage will escape. Temporary lakes may form in this situation whether the ice be in motion or stagnant. The situation will then appear somewhat as follows [see fig. 4].

Into these marginal troughs will be carried sands and gravels by side streams coming from the uplands now freed from ice.

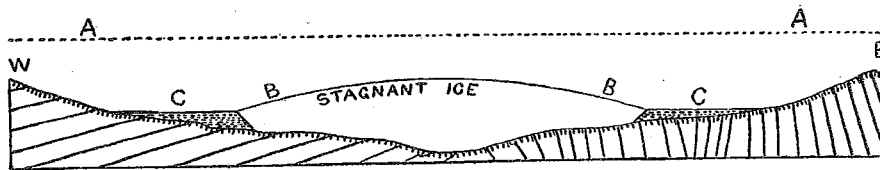


Fig. 4 Cross-section of valley with marginal glacial deposits. Theoretic condition in meridional valley back from the ice front when glacial has thinned in the form of a long tongue of ice or valley glacier: A=maximum development of regional glacier; B=surface of the ice at any given stage of thinning during retreat; C=site of lakes and deposits on margin of glacier.

Along these depressions will also sweep the lateral streams. The evident tendency will be to build deposits of gravel and sand in the presence of the ice as in ordinary stream beds with a slope toward sea level, but owing to melting ice with perhaps sudden changes of level causing lower and lower stages of gravel and sand building toward the mouths of the streams. When the ice melts out, these deposits will form terraces with margins reflecting more or less the form of the ice sheet against which they were constructed. The effects may be reproduced at successively lower levels marking stages in the evacuation of the valley. These stages should be correlated with frontal moraine or delta stages. Marginal remnants of the ice sheet might lie out for some time to be surrounded by gravels and sands, thus giving kettle holes and ice block holes in the contemporaneous ice-bound terraces, when the ice finally disappears.