lakes might arise in which the deposition even of clay would become possible.

During the first stage when the entire district was ice covered, water-laid drift would be limited to subglacial stream deposits including eskers and probably some kames; during the second stage when the drainage from the top of the ice and from the valley sides could escape laterally between walls of ice and rock, deposition might take place high up on the valley sides in the form of lateral moraine terraces, lateral kame terraces and deltas built by streams coming off the ice or down the valley sides, but the iceward margins of these deposits would be subject to derangement from the further melting of the ice. In the last stage, when the ice became confined to the gorge, the rock terraces on either side
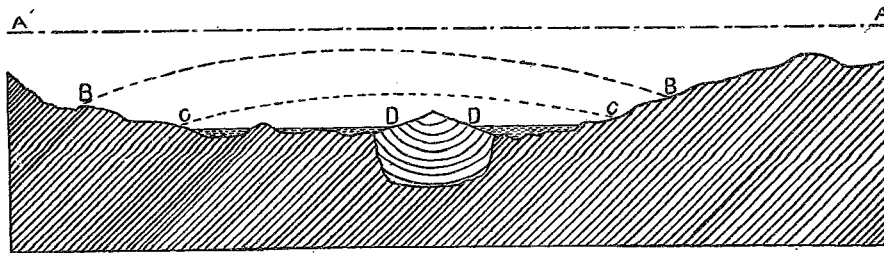

Fig. 5 Cross-section of dwindling ice sheet in middle Hudson valley at different stages in relation to the valley form. *AA*=maximum development of ice; *BB*=local ice; *CC*=ice reduced to a glacier covering old valley-floor; *DD*=ice remnant filling gorge only

would become the seat of lakes and open-air streams with a great variety of deposits. Such deposits would resemble river terrace deposits but near the edge of the gorge they would probably display coarser materials fed on to the rock terraces by the melting of the ice. Kettles and kames would occur here and there where deposition had taken place over and about the fringe of ice lapping over on the rock terrace.

The effect of any slight forward movement of the ice during the progress of melting would simply tend to maintain the ice margin longer at any one position and thus favor the greater development of the deposits at that stage, for forward movement if due to supply of ice from behind would both thicken the ice and increase the length of the glacial tongue.

The effects of the second or valley stage offer no difficulties of recognition, but in the third or gorge stage of the ice remnant it is necessary to discriminate the lateral masking terraces which