tions in the sedimentary history will be greatly increased. The glacial clays laid down in the outer belt of deposition of one frontal stage may be eroded by the overriding action of the ice of the next and then sheeted over, partly or wholly, by deposits of till or boulders as well as by sheets of coarse gravel and sand.

Another effect producing local terraces will arise during the melting of ice from a gorge like that of the Hudson with dissected walls quite independently of sea level so long as the rock terraces rise somewhat above sea level. As soon as the ice is limited to the main gorge, the embayments in the wall, receiving drainage from the ice and such lateral streams as may pour into them from the open country, will form temporary lakes and be filled and sheeted over with sands or gravels at levels determined by the effectiveness of the ice barrier and the duration of the process of filling, as well as by the elevation of the floor of the area of deposition.

Successive stages in the cross-section of a melting glacier in a valley like that of the Hudson river. The glacier which covered eastern New York, it may be said, was pushed on to the area by the pressure of its own accumulation in the Laurentide district. Eliminating the effect of forward motion in the ice and supposing the glacier to have been stagnant over the region between the Highland canyon of the river and the Catskill mountains, it would follow that for some time during the declination in the thickness of the ice sheet the relations to the valley would be those indicated, in figure 5, in which the ice sheet not only filled the valley but covered the divides on either side.

For a long time after, when the ice had dwindled down to a tongue filling the bottom of the valley, its cross-section would have been that shown by *BB* in figure 5 and this general cross-section would have been retained till a final stage was reached, when the ice filled the gorge only leaving the top of the rock terraces free for lateral drainage.

In this final stage the cross-section would be that shown in *DD*, figure 5, in which the broad rock terraces might become the seat of lakes and lateral stream deposits. Upstream and behind constrictions in the valley where the terraces became wedged out as in the Highlands, by unconsumed spurs from the valley sides,