

over New England and westward over the Highlands of New Jersey. In the retreat from the terminal moraine however it is to be expected that the lobate form of the ice in the lower Hudson would be retained, and since the axis of the lobe lay in the lowlands west of the Palisade ridge the east margin of the lobe in its retreat would first uncover the east bank of the Hudson from New York city northward and then the western bank of that river. This relatively earlier opening of the east bank of the river would permit of the drainage from the open country in Westchester county pouring in against the ice margin so as to make deposits partly built against the ice either within the open parts of the gorge or within the dissected rock terrace itself. On the contrary, on the west bank no such deposits would occur, largely because of the lack of an open land slope toward the Hudson.

In this lower section of the Hudson the stratified glacial deposits are restricted to the east bank in situations suggesting in their form and distribution their constraint by the ice margin.

The slight mounding of the deposits at the head or ice contact of the outwash plain at Englewood and again near Tappan village show that the ice at these stages of retreat was slightly quickened and advanced on its frontal outwash deposits, movements which would have extended to the eastern margin, accounting for some distribution there of till over stratified deposits and a slight shoving of stratified beds into disturbed positions.

This inequality of the distribution of stratified deposits is shown elsewhere as on the banks of the Taunton river near Fall River, Mass., where stratified drift, locally a kame terrace, flanks the south side of that southwesterly trending arm of the sea while till without signs of water modification covers the other bank quite down to sea level.

The rule in such situations is that when the ice is retreating with its front nearly or quite parallel to a river valley the bank which is first uncovered by the ice will receive outwash from the ice and inwash from the confronting land while the opposite bank may be left strewn with the ill assorted or unstratified boulder-bearing drift dropped by the ablation of the ice. On the open side of the valley, terraces and kame terraces may thus be formed at levels independent of the sea but above its level.