

the sinking of the land has continued down to present time. Indeed, in the case of New Brunswick, there is positive evidence, in the raised beaches, fossiliferous clays, and associated deposits, that at the close of the Ice Age this coast was very much farther under the sea than now; and that an elevation of from 100 to 200 feet has taken place, nearly but not quite restoring the region to its former position. Since the elevation of this coast is of later date than the stage of widespread submergence, it is more logical to conclude that the movement now in progress, if any, is upward, rather than downward. In any case, drowned valleys do not necessarily show what is the nature of the *latest* movement in a region.

Barrier Beaches.—During the past few years, there seems to have been a growing opinion, on the part of experts in plant physiology and ecology, that barrier beaches like those of New Jersey and New Brunswick are evidences of coastal subsidence. While, so far as I am aware, this opinion has been expressed in print by only one author, it is entertained by others.¹ It is hard to see the reason for this view, unless it is that barrier beaches are commonly associated with salt marsh deposits, and that these are believed, upon botanical grounds, to testify to a modern progressive subsidence. The only attempt to outline a theory for the origin of barrier beaches, based upon subsidence, so far as I have learned, appears in Professor Ganong's notes on the origin of Portage and Fox islands.² Referring to the long, broken barriers across the mouths of the Miramichi and neighbouring estuaries, he says: "Originally . . . they no doubt formed against the margin of the flat upland as ordinary shore beaches. But the steadily progressing subsidence carried the land beneath the sea faster than the beaches, whose rate of inward movement is determined by the erosion of the protecting headlands, could follow; hence the lagoons were formed. The coast is still sinking, and the beaches are still travelling

¹C. A. Davis and David White, in oral discussion of the question of modern coastal subsidence, at the eleventh annual New England Intercollegiate Geological Excursion, at Tufts College, Oct. 13, 1911.

²W. F. Ganong: On the physical geography of the north shore sand islands. Bulletin of the Natural History Society of New Brunswick, vol. 6, 1908, pp. 6-13; and, On the physiographic characteristics of Portage and Fox islands, Miramichi. In the same volume, pp. 1-6.