

tide level, and thus just above the influence of the tides; and the subsidence of several centuries would probably drown these bog floors to depths distinctly below mean tide level. If, on the other hand, there has been no vertical movement of the coast for several centuries, while peat has been accumulating in these bogs, we can see why the fresh-water structures approach, but seem in no place to exceed mean tide level.¹ The latest evidence in the peat bogs of New Brunswick, therefore, argues rather for modern stability than for modern subsidence.

Old Beaches on Prograding Shores, with Crestlines Lower than the Present Beach.—A few places on the coast of New Brunswick, where, instead of retrogression, there has been for centuries a forward construction of the beach, offer opportunity to test the hypothesis of modern subsidence by a comparison of the crestline altitudes of the older beaches with the newer.² Of two such localities described by Professor Ganong—Miscou Grande Plaine and Portage island, the former was selected for a visit, partly because of the interest aroused by Professor Ganong's report on the plant ecology³ and partly because the age of the beaches on Grande Plaine can be estimated with some approach to accuracy.

As both Chalmers and Ganong have stated, Grande Plaine is a long triangular tract of sands at the northwest side of Miscou island. Hither for centuries have been swept the beach sands and gravels that drift northward along the east side of the island. Rounding Miscou point, the shore drift comes to rest on the more sheltered beach of the Grande Plaine. Each successive storm of the first magnitude causes the construction of a new beach, a little outside of the former one. Thus there has grown up a sandy terrace which is over a mile wide, and is corrugated with ridges and swales. The outer, newer ridges are very

¹A larger amount of testimony on this point is, of course, desirable, before drawing definite conclusions. The value of this evidence depends also upon the assumption that the sphagnum deposits have had a continuous upward growth, rather than a horizontal growth out over the surface of pools, in the form of a mat, which might sink to the floor of the basin, after a time, in the manner suggested by Professor Johnson. I am unable to say how far the latter process has entered into the formation of the peat deposits here described.

²D. W. Johnson: The stability of the Atlantic coast. *Bulletin of the Geological Society of America*, vol. 23, 1912, p. 740.

³W. F. Ganong: The nascent forest of the Miscou Beach plain. *Botanical Gazette*, vol. 42, 1905, pp. 81-106.