

III.—*The Bay of Fundy Trough in American Geological History.*

By PROFESSOR BAILEY.

(Read June 23rd, 1897.)

The fact that a northeastern or Acadian basin, not only physiographically distinct from other regions of the American continent, but to a considerable extent independent also as regards its biological progress, was a feature of that continent even from the earliest Paleozoic times, was first brought prominently to notice by the late Prof. J. D. Dana, in the earliest edition (1866) of his *Manual of Geology*. In that work the references to this subject, under the heading of "The Eastern Border Region," were for the most part of a very general character; but in the last edition of the same work, published thirty-one years later, the same idea is elaborated in much more detail, and several successive sketch-maps are presented, embodying the author's views as to the geographical evolution of the region to which they refer. As these views have reference to a most important subject, and are likely to be widely read and accepted, any facts which may tend to confirm or to modify them can hardly fail to be of value. It is the purpose of the present paper to discuss some of these conclusions, especially so far as they relate to New Brunswick and Nova Scotia, in view of such information as recent investigations of the latter are calculated to afford.

Among the features which especially distinguish Prof. Dana's latest presentation of the subject is that of the recognition, among what he terms "areas of geological progress," of an "Acadian channel," this being described as embracing the Bay of Fundy, and thence extending easterly to western Newfoundland, and in the opposite direction along and off the New England coast, probably as far as Narragansett bay. This Acadian trough is further described as persisting through Paleozoic time, and as being separated, at least during the earlier portion of that time, from another and more northerly trough—designated "the Gaspé-Worcester" or "Maine-Worcester" trough—by a range of Archæan rocks, possibly extending across the Gulf of St. Lawrence to Newfoundland; while to the south it was delimited by another Archæan range, termed the "Acadian protaxis," occupying, in particular, central Nova Scotia, and thence extending westerly to Long Island. Finally, in the series of sketch-maps, to which reference has been made, representing the supposed geographical conditions of eastern America in successive periods, various limits are assigned to the submerged and emerged areas, the Nova Scotian protaxis being retained in all.