GEOGNOSY OF THE APPALACHIANS.

15

the Champlain division, including the strata from the base of the Potsdam sandstone to the summit of the Loraine or Hudson River shales, had, by his colleagues, been looked upon as the lowest of the paleozoic system. Professor Emmons, however, was led to regard the very dissimilar strata of the Taconie hills as constituting a distinct and more ancient series. A similar view had been held by Eaton, who placed, as we have already seen, above the crystalline schists of the Green Mountains, his primary quartzose and calcareous formations, followed to the westward by transition argillites and sandstones, which latter appear to have corresponded to the Potsdam sandstone of New York. Emmons, however, gave a greater form and consistency to this view, and endeavored to sustain it by the evidence of fossils, as well as by structure. The Taconic system, as defined by him, may be briefly described as a series of uncrystalline fossiliferous sediments reposing unconformably on the crystalline schists of the Green Mountains, and partly made up of their ruins; while it is, at the same time, overlaid uneonformably by the Potsdam and Calciferous formations of the Champlain division, and constitutes the true base of the paleozoie column, - thus occupying the position of the British Cambrian.

Although he claimed to have traced this Taconic system throughout the Appalachian ehain from Maine to North Carolina, it is along the confines of Massachusetts and New York that its development was most minutely studied. He divided it into a lower and an upper division, and estimated its total thickness at not less than thirty thousand feet, consisting, in the order of deposition, of the following members :---1. Granular quartz; 2. Stockbridge limestone; 3. Magnesian slate; 4. Sparry limestone; 5. Roofingslate, graptolitie; 6. Silicious conglomerate; 7. Taconic slate; 8. Black slate. The apparent order of superposition differs from this, and it was conceived by Professor Emmons that during the accumulation of these Taconic rocks, the Green Mountain gneiss, which formed the eastern border of the basin, was gradually elevated so as to bring successively the older members above the ocean from which the sediments were being deposited. From this it resulted that the upper members of the system, such as the black slates, were confined to a very narrow belt, and never extended far eastward; although he admits that denudation may have removed large portions of these upper beds. At a subsequent period, a series of parallel faults, with upthrows on the eastern side, is supposed to

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