

twenty species from the vicinity of Philipsburg, and from twenty to thirty remain undescribed, so that we may assume fifty species as the number of fossils already found in the different lenticular masses of Philipsburg. Of these, — two *Dikelocephali* and one *Menocephalus* belong to the primordial fauna; the two *Rathyuri* may be considered as belonging to a genus which is common to the first and second fauna, and all the other fossils belong to the second fauna; several, such as *Camerella calcifera*, *Maclurea matutina*, *Ophileta complanata*, and *Ecculiomphalus intortus*, pass into the lower part of the Champlain formation or Calciferous sandrock. Thus we have here lenticular masses of limestone enclosed in the Upper Taconic, and containing precursory or fore-running species and genera of the second fauna. These rocks dip to the east at an average angle of about  $25^{\circ}$ , varying from  $15^{\circ}$  to  $35^{\circ}$ . There are no faults, no foldings, no repetitions of strata; and the Philipsburg group of rocks, instead of belonging to the upper part of the Calciferous sandrock, and even to the Chazy limestone, which it has been referred to by Mr. Billings in his memoir entitled, "*On some of the Rocks and Fossils occurring near Philipsburg, C. E.*" (see *Canadian Geologist*, August, 1861, p. 310), is far below the Potsdam sandstone, and in the middle of the Upper Taconic.

Last year my observations in Vermont were more especially directed toward the St. Albans group, the Georgia slates, and the Red sandrock, or Potsdam sandstone, which were then called by Messrs. Logan, Hall, Rogers, and others, Hudson River group, Oneida conglomerate, Medina sandstone, and metamorphic Devonian; and, as I remained only a few hours at Philipsburg, I adopted without examination the opinions expressed by Mr. Billings, in his memoir above quoted; but a careful survey this year has convinced me that at Philipsburg, as well as at Point Lévis, Mr. Billings has been misled in giving explanations, and arriving at conclusions, in his paleontological researches, which are entirely at variance with what exists in nature, — an error that would not have occurred if the paleontologist of the Canada Survey, who does not pretend to be a stratigraphical observer, had been better seconded by the other members of the Survey.

*Swanton Slates.* — The Swanton slates, so well developed all round the village of Swanton, are composed of black slates, interstratified, now and then, with thin layers of a marly limestone from

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