

west by (2nd.) the Ocoee conglomerates and sandstones, with argillites, chloritic, talcose and micaceous slates, and occasional bands of limestone, all dipping, like the rocks of the 1st division, to the S. E. In the 3rd place we have the Chilhowee sandstones and shales, several thousand feet in thickness, including near the summit beds of sandstone with *Scolithus*, and considered by Mr. Safford the equivalent of the Potsdam. (4th.) The Magnesian limestone and shale group, also several thousand feet thick, and divided into three parts: first, a series of fucoidal sandstones approaching to slates and including bands of magnesian limestone; second, a group of many hundred feet of soft brownish, greenish, and buff shales, with beds of blue oolitic limestone, which as well as the shales, contain trilobites. Passing upward these limestones become interstratified with the third sub-division, consisting of heavy bedded magnesian limestone, more or less sparry and cherty near the summit. The limestones of Knoxville belong to this group, which with the 3rd or Chilhowee group is designated by Mr. Safford as Cambrian, corresponding to the Primal and Auroral of Rogers, or to the Potsdam and Calciferous sandrock, with the possible addition of the Chazy, being equivalent to the great Magnesian limestone series of Prof. Swallow in Missouri. To these strata succeed Safford's 5th formation, consisting of limestones, the equivalents of the Black River, Trenton and higher portions of the Lower Silurian.

In Eastern Canada we find a group of strata similar to those described by Rogers and Safford, and distinguished by Sir William Logan as the Quebec group. It has for its base a series of black and blue shales, often yielding roofing slates, succeeded by grey sandstone and great beds of conglomerate, with dolomites and pure limestones, often concretionary and having the character of travertines. These are associated with beds of fossiliferous limestones, and with slates containing compound graptolites, and are followed by a great thickness of red and green shales, often magnesian, and overlaid by 2000 feet of green and red sandstone, known as the Sillery sandstone, the whole from the base of the conglomerate, having a thickness about 7000 feet. These red and green shales resemble closely those at the top of the Hudson River group, and the succeeding sandstones are so much like those of the Oneida and Medina formations, that the Quebec group was for a long time regarded as belonging to the summit of the Lower Silurian series, the more so as by a great break and upthrow to