

intense crushing and deformation; their apparent alternations with limestone and other rocks, which are probably of sedimentary origin, are deceptive, indicating no real continuity of formation, but pointing to the intrusive nature of the gneiss.

2. *Pre-Cambrian sedimentary and volcanic groups*

In different parts of the world enormous masses of rock are now known to intervene between the oldest or "Archæan" gneisses, and the bottom of the fossiliferous series of formations. It was in Canada that these rocks were first studied. Logan and Murray grouped them under the general name of Huronian, and they were believed to fill up the gap between the Laurentian gneiss on the one hand, and the Potsdam sandstone or base of the fossiliferous series on the other. Later more detailed study of these rocks in Canada and the adjoining regions of the United States has shown them to possess even a greater importance than their original discoverers imagined, for they have been found to consist of several distinct groups or systems, attaining a vast thickness and presenting a record of stupendous disturbances, denudations and depositions of sediment, together with memorials of extensive and prolonged volcanic action. In the higher members of these sedimentary deposits, distinct remains of animal life have in several regions been found. There is thus opened out the possibility of the ultimate discovery of a series of fossiliferous formations even below the base of the Palæozoic series.

Where metamorphism has not interfered with the recognition of their original characters, these ancient sedimentary rocks present no structural feature to distinguish them from the detrital accumulations of higher parts of the geological