of ages before that fauna appeared, in order that such well-advanced grades of organization should then have been reached. One of the most interesting chapters of geological history would be supplied if some adequate account could be given of the stages of this long pre-Cambrian evolution.

But the mere thickness and variety of the pre-Cambrian formations, together with their unconformabilities and other structural features, suffice to prove that they represent an enormous chronological interval. In North America, where, so far as at present known, they are most extensively developed, they are estimated to attain a thickness of more than 65,000 feet, or upward of twelve miles, and have been regarded there as chronologically quite equal to the whole of the rest of the geological record. Even when we eliminate the bedded volcanic rocks from the computation and reduce the remaining sedimentary series to the lowest allowable dimensions, an enormous mass of stratified material remains, which, even if it had been uninterruptedly deposited, would have required a period of time comparable to probably more than that taken by the whole of the Palæozoic systems. But we know that the deposition was not continuous. Both in North America and in Europe there is clear evidence from marked unconformabilities that it was broken by epochs of upheaval and by long periods of extensive denudation. It is evident, therefore, that we must assign to the records of pre-Cambrian time a far more important chronological value than has generally been apportioned to them.

If, as already stated, it is impossible in the present state of science to find any satisfactory basis for the correlation of the oldest gneisses in distant and disconnected regions, it is not more practicable to establish a basis of correlation