

deposition of the Niagara than in earlier epochs. It would follow from these considerations, that as Paleozoic time advanced from Cambrian to late Silurian or Devonian there was a gradual and progressive subsidence of this portion of the continent. As we have no evidence of the deposition of post-Devonian formations anywhere over the Archean "nucleus" till we come down to post-Tertiary, it may be tentatively inferred that after the Devonian it was again elevated, and this elevation probably only reached its maximum during the glacial epoch, affording the conditions of altitude contended for by many writers to explain the great precipitation of snow. In post-glacial times we know from the distribution of such formations as the *Leda* clay and *Saxicava* sand that the northern part of the continent was again partially submerged for several hundred feet, from which depression it has since recovered; we thus have evidence of a slow vertical pulsation of the surface of this part of the continent, of which there have been at least four great beats since early Cambrian times.

But this is a digression, and the argument which has led to these remarks was inaugurated to show simply that the surface of the Archean "nucleus" was once very extensively if not wholly covered by Paleozoic sediments. This covering probably accounts in a large measure for the remarkable preservation of the Archean surface in the condition in which pre-Paleozoic denudation left it. There are other considerations which help us to understand this preservation, such as the levelness of the plateau and its comparatively low altitude, combined with the very resistant character of most of its rocks, which appear to be little susceptible to that erosive or corrasive action of streams which is so effective in removing the more yielding strata of post-Archean age. These considerations will not, however, be entered upon here.

*The Erosion of the Archean.*—One is constantly impressed by the perfectly appalling amount of denudation to which the Archean has been subjected in order to truncate its formations down to the surface which it presents to-day. And when we reflect, as a result of the conclusions here arrived at, that this denudation was practically completed before the beginning of earliest Paleozoic times, and has not been, as commonly supposed, the result of later agencies, there looms up a conception of the pre-Paleozoic interval necessary for such denudation which staggers even the most stalwart geological imagination. To say that it must have been comparable with all the time which has succeeded from the earliest Cambrian to the present seems but a feeble way of expressing it.

*Source of Paleozoic Sediments.*—The conception of a covering of Paleozoic strata over the surface of the Archean "nucleus," which probably endured into comparatively recent geological times, enables us to a large extent to understand the preservation of the pre-Paleozoic surface, but it also raises the