

important question of the source of the sediments composing those strata. If such a wide-spread formation as the rocks of Niagara age was deposited over the surface of the Archean "nucleus," as well as over the regions which encircle it, it is clear that the Archean "nucleus" could not have been the source of supply of those sediments. Some other portion of the continent, or some other region now submerged, must have constituted the dry land of that time. Where that region lies is a question yet to be answered.

DISCUSSION.

Professor J. W. SPENCER: The facts set forth in this very interesting paper by Dr. Lawson have their counterparts in the geological structure of the South. The hummocky and rounded rock surfaces have always had an interest for me, on account of their common occurrence in regions which have been glaciated, and hence regarded by many as evidence of glacial erosion. But in the paper of Dr. Lawson we learn that such surfaces existed before the formation of the early Paleozoic terranes. Some of you may be familiar with Stone Mountain, about fifteen miles from Atlanta, Georgia. This is a rounded granite hummock of over a mile, in longer diameter, rising 700 feet above the plain. The rock is remarkably free from joints, and is rarely traversed by even an insignificant vein. Thus its structure has been favorable to the preservation of the rounded form, whose outline is as perfect as any of the domes of glaciated Norway or Canada; or of southeastern Missouri, which lies outside of former glacial action. Stone Mountain rises from beneath very much disturbed strata of gneiss, whose beds dip to the southeast, and there is no gradation of any importance between the granite and the gneiss. The gneiss is decayed to a depth, in some places, of at least sixty feet; but the granite is compact, without being weakened by even incipient decay. The surface materials, as fast as decomposed, are washed off by the rains. Thus the contrast between the two formations of rocks is preserved. This Stone Mountain is only one of many in Georgia and Alabama. Here, then, we have, in the South, pre-Paleozoic surfaces as old as or older than those described by Dr. Lawson in the Lake Superior region, and brought to light by simple atmospheric action. Along the Potomac river we find hummocks being formed by the progress of atmospheric invasion along lines of joints, but these are now in process of formation, and do not represent so ancient surfaces as those of the granite hummocks of the South.