

for referring the Glacial age to a period so remote as that advocated by Croll on astronomical grounds. Claypole has recently discussed the matter at some length, and in a temperate spirit.¹ He takes the rate of erosion of the Niagara gorge as a measure, and shows that the Falls of St. Anthony, as described by Winchell, and all the other falls and river gorges in North America, give similar estimates, which are confirmed by the evidences of lake ridges, of the rate of erosion, and of the conditions of animal and plant life. The whole go to show that the culmination of the Glacial age may have occurred less than 10,000 years ago. He further shows that the differential elevation of Lakes Erie and Ontario, the greater ease with which the river could cut the lower part of its ravine, the probability that the part of the gorge between the whirlpool and the fall was not cut, but only cleaned out in modern times, and the possible greater flow of water in the early modern period, all tend to shorten the time required, and that, as Prestwich has inferred from other data, and the writer also in various papers, some of them of old date, the so-called post-glacial period, that of the melting away of the ice, may come within 8,000 to 10,000 years of our own time. Probably the first of these figures is the nearest to the truth,² so that, geologically considered, the Glacial age is very recent.

Still another question of great cosmic interest relates to the possible alternation of glacial conditions in the northern and southern hemispheres. There is evidence of drift in the southern part of South America, similar to that in the north; but was it deposited at the same time? If we could be sure that it was not, many difficulties would be removed. The southern hemi-

¹ Trans. Edinburgh Geol. Soc., vol. v., 1888.

² Upham, one of the ablest and most experienced of the Glacial geologists in the United States, in a recent paper on the causes of the glacial period, states similar conclusions, and adduces the evidence of Gilbert, Andrews, Wright, Emerson and others in the same sense.