

cating the changes in the near future. From the northeastward tilting of the lake region, it was computed that in 5,000 years, not merely Niagara falls would cease to exist, but also that the drainage of the deepest part of the Niagara river at Buffalo (45 feet) would be reversed and turned into lake Erie, whose outlet would then be through lakes Huron and Michigan into the Mississippi river by way of Chicago. This inference was based upon the long delayed discovery of the rate at which the earth's crust has been rising in the lake region,—which was found to be for the Niagara district 1.25 feet per century more than the rate of rise at Chicago.\* With this determination it was easy to calculate the rate of terrestrial deformation for other regions,—thus northeast of lake Huron the rise has been found to be two feet per century, and north of the Adirondacks, the warping is progressing at 3.75 feet in a hundred years.

The rate of deformation of 1.25 feet per century, in the Niagara district, was the minimum calculation, with a possible maximum of about 1.5 feet per century. The approximate correctness of the determination has just been confirmed by a paper presented to the American Association, by Prof. G. K. Gilbert, immediately before this communication was read.† He had used the bench-marks at various localities where the fluctuations of the lake levels have been registered the last 20-37 years. While the recorded measurements vary from about one to two and a half inches during the periods of observation, they have been extended over the lake region, with results closely agreeing with the previous determinations of the writer. This will be better understood using Prof. Gilbert's application—namely,—that in 500-600 years, the Erie waters would be on a level with those of lake Huron—in 1,000 years they would overflow the natural divide near Chicago—in 2,500 years, the waters would cascade into the Niagara gorge only during high water—and in 3,000 years, the falls would be entirely drained. These changing conditions, based upon the writer's previously discovered rate of terrestrial deformation, would take—720 years for the Erie and Huron waters to be

\*See Duration of Niagara Falls, cited before.

† Modification of the Great Lakes by earth movements. *Nat. Geog. Mag.*, vol. VIII, 1897, pp. 233-247.