

took place; and the intermittent action of violent floods caused the deposit and disturbance and re-settlement of the gravels and brick earth."

But the calculations and estimates on these points of stratas and bones and other fossils, and impressions of plants and other phenomena, must be made, not within the limited period of 1643 years mentioned by the Dr. as sufficient to produce them, but on the 5,800 years since the creation of the earth, or, to limit it since the flood, about 4,150 years. If, as he thinks, 1643 years would suffice, surely he must allow that either 5,800 or 4,150 are abundantly sufficient for producing all those results. The Dr. proceeds with giving the estimates of several of his geological brethren, as to the rates of erosions, by rivers, and says:—

"Croll has estimated that of the Mississippi at one foot in 6000 years; and that of the Ganges at one foot in 2358 years." He says:—"Reade, of Liverpool, has given the estimate for the Mississippi at one foot in 13,000." Only 7000 more than that of Croll. Of the calculation of the latter the Dr. says:—"If we estimate the proportion of land to water as 576 to 1390, this will give, for the entire area of the ocean, a rate of deposition of one foot in 14,400 years. Now the entire thickness of all the stratified rocks is estimated at 72,000 feet (over 13 miles in thickness), and at this rate the enormous time of 1,036,800,000 would be necessary. But we have no right to assume that deposition has been going on uniformly over the entire sea-bottom. On the contrary, the greater part of it takes place within a belt of about one hundred miles from the coasts, and the deposits of calcareous and other matters over the remainder will scarcely make up for the portions of this belt on which no deposit is taking place. This will give an area of deposit of about 11,650,000 square miles, consequently only one-twelfth, or about 86,400 years would be required." He says:—"Sir William Thompson limits the possible existence of the earth's solid crust to one hundred millions of years. * * Croll's ingenious theory of glacial periods would give, according to him, about 80,000 years ago for the date of the Glacial period, and for the beginning of the Tertiary period about 3,000,000 years ago." The Dr. says of these various calculations and estimates:—"They agree in restricting the ages that have elapsed since the introduction of life within one hundred millions of years."

It is evident that the Dr. himself has no faith in any of these monstrous calculations and numbers, for he immediately says:—

"I confess, however, that a consideration of the fact that all our geological measures of erosion and deposition seem to be based