

all the country north of the mouth of the Thames and the Bristol Channel was placed much below the present level. Moel Tryfaen experienced a submergence of at least 1,400 feet, during which it received the erratic blocks and other marks, indicative of floating icebergs, which have been described in a former chapter. The country was raised again to something like its original level, and again occupied by plants, Molluscs, Fishes and Reptiles, Birds, and Mammifera. Again subsidence takes place, and, after several oscillations, the level remains as we now find it. The estimated time required for these various changes is something enormous, and might have extended the term to double the number of years. The unit of the calculation is the upward rate of movement observed on the Scandinavian coast; applied to the oscillation of the ancient coast of Snowdonia, the figures represent 224,000 years for the several oscillations of the glacial period. Adding the pre-glacial period, the computation gives an additional 48,000 years. But, let us repeat, the figures and data are somewhat hypothetical.

With regard to the St. Acheul beds—said to be the most ancient formation in which the productions of human hands have been found—they are confessedly older than the peat-beds, and the time required for the production of other peat-beds of equal thickness has been estimated at 7,000 years. The antiquity of the gravel-beds of St. Acheul may be estimated on two grounds:—1. General elevation above the level of the valley. 2. By estimating the animal-remains found in the gravel-beds, and not in the peat. The first question implies the denudation of the valley below the level of the gravel, or the elevation of the whole plateau. Each of these operations would involve an incalculable time, for want of data. In the second case, judging from the slow rate at which quadrupeds have disappeared in historic times, the extinct Mammoth and other great animals must have occupied many centuries in dying out, for the notion that they died out suddenly from sharp and sudden refrigeration, is not generally admitted.

With regard to the three ages of stone, bronze, and iron, M. Morlot has based some calculations upon the condition of the delta of Tinière, near Villeneuve, which lead him to assign to the oldest, or stone period, an age of 5,000 to 7,000 years, and to the bronze period from 3,000 to 4,000. We may, then, take leave of this subject with the avowal that, while admitting the probability that an immense lapse of time would be required for the operations described, we are, in a great measure, without reliable data for estimating its actual extent.