

QUATERNARY ERA, OR ERA OF MAN.

Hitherto, along the ages, to the close of the Tertiary period, the continent of North America had been extending its foundations and dry land southward to the Gulf, southeastward to the Atlantic, and southwestward to the Pacific, chiefly through marine depositions. The scene of prominent action now changes. The Quaternary phenomena are mainly those that pertain to the continental surface; and this general fact is true for all the continents, north and south. Through the making of the great mountain-ranges in the era just passed, and the raising of them to icy altitudes, and by the growth of the continents to their full limits, the water-power of the world had been vastly increased, and this was the chief working agency.

Rivers had become of continental extent, and *glaciers* had gathered about the loftier mountains. These agencies, so eminently characteristic of the new era, were the means of finishing off the earth's physical arrangements.

The Quaternary era opens with a *glacial* period. "The existence at this time of an epoch of unusual cold was a natural sequence to the vast amount of elevation and mountain-making that had been going on in the Tertiary over all the continents; for this upward movement would necessarily have resulted in increasingly cold climates over the earth." (D., 1881.)

The following are the periods of the Quaternary: —

3. RECENT PERIOD. — A moderate elevation of the land where depressed in the preceding period. Mammals of existing species.
2. CHAMPLAIN PERIOD. — Depression of lands that were glaciated in the Glacial period; amelioration of climates; final disappearance of the ice; great river floods and lakes, and fluvial and lacustrine deposits. Mammals of the warm temperate zone over parts of the previously glaciated regions, their species largely extinct.
1. GLACIAL PERIOD. — Increased elevation of the land over wide regions in higher latitudes; climate in these latitudes of low temperature and abundant precipitation, and consequently, the production of glaciers, and a wide-spread glaciation of the frigid lands, with the exclusion of all life except that of icy regions.

The Glacial and Champlain periods were united by Lyell, in his later works, under the general name of the **PLEISTOCENE**; and thus the Quaternary era — or the Post-Tertiary, as he named it — was divided into the **PLEISTOCENE** and **RECENT** periods. The term *Pleistocene* is used beyond in this sense.

Lyell used the term *Post-Tertiary* for the formations subsequent to the Tertiary, and through many editions of his works divided it into Post-Pliocene and Recent. In the first edition of his *Principles of Geology*, published in 1830-33, the Tertiary was followed simply by the division Recent; and the subjects of the Drift and Cave animals were