

CHAPTER XXXII.

ON THE DIFFERENT AGES OF THE VOLCANIC ROCKS—*continued*.

Volcanic rocks of the Pliocene, Miocene, and Eocene periods continued—Auvergne—Mont Dor—Breccias and alluviums of Mont Perrier, with bones of quadrupeds—River dammed up by lava-current—Range of minor cones from Auvergne to the Vivarais—Monts Dome—Puy de Côme—Puy de Pariou—Cones not denuded by general flood—Velay—Bones of quadrupeds buried in scorix—Cantal—Eocene volcanic rocks—Tuffs near Clermont—Hill of Gerovia—Trap of Cretaceous period—Oolitic period—New Red Sandstone period—Carboniferous period—Old Red Sandstone period—"Rock and Spindle" near St. Andrew's—Silurian period—Cambrian volcanic rocks.

Volcanic Rocks of Auvergne.—THE extinct volcanos of Auvergne and Cantal in Central France seem to have commenced their eruptions in the Upper Eocene period, but to have been most active during the Miocene and Pliocene eras. I have already alluded to the grand succession of events, of which there is evidence in Auvergne since the last retreat of the sea (see p. 196).

The earliest monuments of the tertiary period in that region are lacustrine deposits of great thickness (2, fig. 676, p. 547), in the lowest conglomerates of which are rounded pebbles of quartz, mica-schist, granite, and other non-volcanic rocks, without the slightest intermixture of igneous products. To these conglomerates succeed argillaceous and calcareous marls and limestones (3, fig. 607) containing upper Eocene shells and bones of mammalia, the higher beds of which sometimes alternate with volcanic tuff of contemporaneous origin. After the filling up or drainage of the ancient lakes, huge piles of trachytic and basaltic rocks, with volcanic breccias, accumulated to a thickness of several thousand feet, and were superimposed upon granite, or the contiguous lacustrine strata. The greater portion of these igneous rocks appear to have originated during the Miocene and Pliocene periods; and extinct quadrupeds of those eras, belonging to the genera Mastodon, Rhinoceros, and others, were buried in ashes and beds of alluvial sand and gravel, which owe their preservation to overspreading sheets of lava.

In Auvergne the most ancient and conspicuous of the volcanic masses is Mont Dor, which rests immediately on the granitic rocks standing apart from the fresh-water strata.* This great mountain rises suddenly to the height of several thousand feet above the surrounding platform, and retains the shape of a flattened and somewhat irregular cone, all the sides sloping more or less rapidly, until their inclination is gradually lost in the high plain around. This cone is composed of layers of scorix, pumice stones, and their fine detritus, with interposed beds of trachyte

* See the map, p. 195.