

continued to do down to the invasion of the locomotive and the transformations of civilization.

I can not undertake to convey to your comprehension, in a few lines, any adequate conception of the aspects and characters of these long extinct beings. If we speak only of mammals, we can say that they generally differed widely—often grotesquely—from any forms now living. It was then near the beginning of mammalian development on the earth. Still those creatures presented unmistakable resemblances to modern mammals, in all fundamental respects. If there were no elephants, there were the *Brontotherium* and *Dinoceras* and *Tinoceras*, and especially in the Old World, the *Dinothereum*, which seemed like uncouth and undeveloped pachyderms trying to become proboscideans. But the *Brontotherium* had no tusks, no trunk, no elephantine molars. The “comprehensive” character of these and other early mammals was the most interesting fact; but I reserve more particular mention for a later opportunity.

XXIX. LESSON FROM A LUMP OF CHALK.

MESOZOIC ROCKS AND FOSSILS.

THIS white lump, soft enough to be cut with a knife, effervesces very briskly when any strong acid is applied to it. Even strong vinegar causes the formation of a multitude of small bubbles. Effervescence is caused by the escape of some gas. Almost always, the gas is carbonic acid, or as we now say, carbon dioxide. Chalk is a compound of this and calcium. The latter is familiar in the form of lime. Carbonic acid is feeble, and when the strong acid is applied to the chalk, it drives off the carbonic acid, and takes possession of the calcium for itself, forming a different compound. The carbonic acid when freed from combination, resumes its gaseous form. It therefore swells up, and mixed with the water of the strong acid, produces the bubbles which constitute effervescence. Chalk, however, has essentially the same constitution as limestone and marls.