

crust, as regards elevation and submergence, throughout each one of the great systems into which the geological scale has been divided.

We have now reached in our hasty sketch that portion of the earth's history which is most closely related to our own time, viz., the *Post-tertiary*, the phenomena of which are generally discussed under the head of superficial geology. At the close of the Pliocene or last of the divisions of the Cenozoic or Tertiary a great change of conditions as regards the surface of much of the globe evidently took place, introducing what is known as the *glacial epoch*, a time of intense cold, when large areas of the northern hemisphere, at least, became covered with ice, which extended probably over the whole or greater part of Canada. Whether similar glacial conditions occurred at earlier stages of the earth's history is a subject which has evoked considerable discussion, some eminent authorities maintaining that the evidence of such ice action, as seen in the presence of glaciated or striated stones in conglomerates, are clearly visible even as far back as the Paleozoic time. It would be out of place here, even did time permit, to discuss the causes that led to the changes in the climate of this period, such considerations more properly belonging to the domain of the astronomer and physicist.

The last of the geological periods, that now under consideration, is also styled the Quaternary or Post-pliocene. It is generally divided into two parts, the first known as pleistocene or *diluvial*, in which many of the mammals are of species now extinct, and the *alluvial* or recent, in which all or nearly all the mammals are of still living species. The indications of a change of climate at the close of the Tertiary are seen in the character of the organic life of that time, and it affected the higher latitudes both of the old and new worlds. The cold gradually increased until the conditions now prevailing in Greenland reached a latitude of about 39° in Eastern America. Over a great part of the hemisphere north of this parallel it is held by many that a great ice cap, many hundreds and even thousands of feet in thickness, covered the surface, which, following the law of glaciers, moved steadily but slowly forward. The effect of the movement of so vast a body of ice was of necessity to remove the soil and superficial deposits and to