

the terrestrial vegetation preserved in the strata, we may infer that in England the climate of the oldest Tertiary periods was of a temperate character,⁵ but that it became during Eocene time tropical and subtropical, even in the centre of Europe and North America. It then gradually grew more temperate, but flowering plants and shrubs continued to live even far within the Arctic Circle, where, then as now, unless the axis of the earth has meanwhile shifted, there must have been six sunless months every year. Growing still cooler, the climate passed eventually into a phase of extreme cold, when snow and ice extended from the Arctic regions far south into Europe and North America. Since that time, the cold has again diminished, until the present thermal distribution has been reached.

With such changes of geography and climate, the plant and animal life of Tertiary time, as might have been anticipated, is found to have been remarkably varied. Entering upon the Tertiary series of formations, we find ourselves upon the threshold of the modern type of life. The ages when lycopods, ferns, cycads, and yew-like conifers were the leading forms of vegetation, have passed away, and that of the dicotyledonous angiosperms—the hardwood trees and evergreens of to-day—now succeeds them, but not by any sudden extinction and re-creation; for, as we have seen (p. 1520), some of these trees had already made their appearance in Cretaceous times. The hippurites, inocerami, ammonites, belemnites, baculites, turrilites, scaphites, and other mollusks, which had played so large a part in the molluscan life of the later Secondary periods, now cease. The great reptiles, too, which, in such wonderful variety of type, were

⁵ J. S. Gardner in "Geology of the Isle of Wight," Mem. Geol. Surv. 1889, p. 106.