

this is the case, some species have disappeared without known successors, and others have come in without known predecessors. Nay whole floras have come in without known origin. Since the Miocene age the great Arctic flora has spread itself all around the globe, the distinctive flora of North-Eastern America and that of Europe have made their appearance, and the great Miocene flora once almost universal in the Northern Hemisphere has as a whole been restricted to a narrow area in Western and warm temperate North America. Even if with Gray, in his address of two years ago before the American Association, we are to take for granted that the giant Pines (Sequoias) of California are modified descendants of those which flourished all over America and Europe in the Miocene, Eocene and Cretaceous, we have in these merely an exceptional case to set against the broad general facts. Even this exception fails of evolutionary significance, when we consider that the two species of Sequoia, which have been taken as special examples, are at best merely survivors of many or several species known in the Cretaceous and Tertiary. The process of selection here has been merely the dropping out of some out of several species of unknown origin, and the survival in a very limited area of two, which are even now probably verging on extinction: in other words, the two extant species of Sequoia may have continued unchanged except varietally from Mesozoic times, and other species existed then and since which have disappeared; but as to how any of them began to exist we know nothing, except that, for some mysterious reason, there were more numerous and far more widely distributed species in the early days of the group than now. This is precisely Barrande's conclusion as to the Palæozoic Trilobites and Cephalopods, and my own conclusion as to the Devonian and Carboniferous plants. It is rapid culmination and then not evolution but elimination by the struggle for existence.

The argument deduced from these successive floras reminds one of certain attempts which have been made in England to invalidate Barrande's law in his own special field. With a notice of one of these, which emanates from a successful collector of Primordial fossils, I shall close. He says, after referring to the different species of Paradoxides and allied genera in the Cambrian:—

"Other species show various gradations in the eyes and in the pygidium until we attain to *P. Davidis*, which has small eyes, a small