

America, and is also said to be found in Japan, Australia, and India, a width of distribution appropriate to so old a type (Fig. 76).

In so far as vegetable life is concerned, the transition from the Upper Cretaceous to the Tertiary or Kainozoic is easy, though in many parts of the world, and more especially in western Europe, there is a great gap in the deposits between the upper Chalk and the lowest Eocene. With reference to fossil plants, Schimper recognises in the Kainozoic, beginning with the oldest, five formations—Palæocene, Eocene, Oligocene, Miocene, and Pliocene. Throughout these a flora, similar to that of the Cretaceous on the one hand and the modern on the other, though with important local peculiarities, extends. There is evidence, however, of a gradual refrigeration, so that in the Pliocene the climates of the northern hemisphere were not markedly different from their present character.

In the first instance an important error was committed by palæobotanists, in referring to the Miocene many deposits really belonging to the Eocene. This arose from the early study of the rich plant-bearing Miocene beds of Switzerland, and from the similarity of the flora all the way from the Middle Cretaceous to the later Tertiary. The differences are now being worked out, and we owe to Mr. Starkie Gardner the credit of pointing these out in England, and to the Geological Survey of Canada that of collecting the material for exhibiting them in the more northern part of America.

In the great interior plain of America there rests on the Cretaceous a series of clays and sandstones with beds of lignite, some of them eighteen feet in thickness. This was formerly known as the lignitic or lignite Tertiary, but more recently as the Laramie series. These beds were deposited in fresh or brackish water, in an internal sea or group of lakes and swamps, when the continent was lower than at present. They have been