

remarkable manner; and the endemic element is specific rather than generic*. The diversified oak-forests laden with epiphytical orchids, Bromeliaceæ, and other plants equally characteristic of the vegetation south of the Isthmus of Panama afford the best illustration of the correctness of this statement. It is true the oak type is not peculiarly characteristic of a moist climate; but it is essentially northern, and although it has reached the Andes of South America, its development there is quite insignificant†. On the other hand, the orchids associated with the oaks of Mexico belong almost wholly to genera equally or more strongly represented in South America. Thus only nine out of upwards of a hundred genera are endemic in our central province; and only fourteen are restricted to the country north of the Isthmus of Panama. Further, ten of the fourteen endemic genera are monotypes, and the others number very few species; moreover it is noteworthy that nearly as many of the genera reach eastern as western South America. Details of the distribution of this highly characteristic order in South Mexico will be found on pages 267 to 271, but we do not there distinguish between the eastern and western extensions in South America. From elaborate tables compiled on a slightly different basis from our present, before the publication of the Orchideæ in Bentham and Hooker's 'Genera Plantarum,' it appears that sixty-five of our genera also occur in eastern South America, sixty-nine in western, and fifty-nine in the West Indies; and of species seventy-nine are common to the West Indies, seventy-five to Colombia, twenty-two to Peru, forty-five to Guiana, and thirty-six to Brazil. On the other hand, 520 species of orchids are endemic in the combined areas of South Mexico and Guatemala. The distribution of the Bromeliaceæ, Aroideæ, and Gesneraceæ is very similar; and if other instances of their eastern North-American associates in South Mexico are wanted we may refer to the list of deciduous trees on page 309.

The flora of Guatemala is essentially of the same composition as that of South Mexico, though apparently less rich in specific diversity. About 1600 species of vascular plants belonging to 677 genera are recorded from this area. Of the eastern North-American deciduous arboreal types in South Mexico just alluded to, some, as *Tilia* and *Ulmus*, are not known to reach Guatemala, while others, such as *Liquidambar*, *Morus*, *Ostrya*, and *Carpinus*, are present, and the two latter have here their southern limit. As might be expected, too, some characteristic South-American types find their northern limit in Guatemala. Noteworthy among these are the Vochysiaceæ; the genera *Vochysia* and *Trigonostemon* being both represented.

* The phanerogamic generic endemic element consists of 198 genera for the whole of Mexico and Central America, or 11 per cent. of the total; and the Compositæ, which are represented by very nearly double the number of genera of any other order, and by 5 per cent. more species than the next in numerical sequence, contribute forty-five of them, or 23 per cent., which is nearly twice the proportional amount of the orders collectively, for only 12 per cent. of the total genera belong to the Compositæ. Taking North Mexico alone, the proportional generic endemic element would be even higher in this order, and extending the area to Texas, New Mexico, and Arizona, it would be enormously increased; and this applies to the generic endemic element generally, confirming the view that this region constitutes a distinct plant province.

† Particulars of this will be found at p. 261.