

problems difficult of solution. As regards a very large number of northern types, they can be distinctly traced southward. Many exist only in isolated localities, as they have been driven out by climatal conditions, while others present a nearly continuous chain; but, speaking generally, they gradually decrease in volume from north to south. The theory that the Proteaceæ, Eucalypti, and other southern types inhabited Europe in early Tertiary times is far from being established on satisfactory data, and all the indisputable evidence points to a northward migration of these types and a southern origin. If it can be proved that the prototypes of *Eucalyptus*, Proteaceæ, &c. existed in Europe, and that the northern outliers of these types are survivals of stragglers of the southward migration, it follows that differentiation equal to the greatest differentiation in the whole world took place in the northern hemisphere, and that there has been comparatively little beyond specific differentiation in the southern. This may be so, and the extraordinary development of the genera *Erica*, *Mesembryanthemum*, and *Pelargonium* in South Africa and of *Ranunculus*, *Epilobium*, and *Veronica* in New Zealand might be cited in support of the argument.

In conclusion, a few additional remarks on the adoption of a few large primary regions. With regard to treating the north temperate and arctic countries as one primary region, it may be contended that, although there is a large number of genera common to Europe and western North America, to give an extreme illustration*, there is also a larger number not represented in the two countries, including genera numerous in species, such as *Medicago*, *Cousinia*, and *Acantholimon* on the one hand, and *Dalea*, *Gilia*, and *Pentstemon* on the other. This is true; but are the differences greater than between Ceylon and Borneo or between the latter and New Guinea, or between South-west Australia and South-east Australia? Among the numerous genera peculiar to West Australia are such prominent ones as *Kingia*, *Dasypogon*, *Anigozanthos*, *Conostylis*, *Andersonia*, *Dryandra*, *Pileanthus*, *Verticordia*, *Tremandra*, *Platytheca*, and *Chorilæna*. Among those common to the two are *Eucalyptus*, *Persoonia*, *Hakea*, *Grevillea*, *Dampiera*, *Leschenaultia*, *Myoporineæ*, and *Xanthorrhæa*. Further, upwards of eighty per cent. of the species of vascular plants are endemic. The absence of a large number of orders and suborders represented in Eastern Australia is also remarkable, and on a par with the poverty of the European Flora as contrasted with the Chino-Japanese or the North-American. Nevertheless few persons would refer these two areas to different primary botanical regions†.

* As already urged, it is a comparison of the vegetation of Eastern Asia and Eastern North America that reveals the most striking similarities; the affinities between these two regions being much stronger than those existing between the vegetation of Europe and Eastern Asia.

† Sir Joseph Hooker sufficiently indicates in his essay on the Australian Flora the striking characteristics of, and the more striking diversities between, the vegetation of Eastern and Western Australia; but Dr. Engler's tabular view and partial analysis of the Flora of the whole of Australia (Versuch, ii. pp. 12-54) brings out these peculiarities much more prominently.