BOOK REVIEW

A new phytogeographical study. The value of Dr van Balgooy's new publication* goes far beyond the Pacific basin, which is the scene of the factual investigation; it is therefore proper to omit the word Pacific from the heading of this review. The extended importance lies in the survey of phytogeographical techniques, and the thorough account of his own methodology, which Dr. van Balgooy gives. There is, for instance, a synopsis of the different mathematical indexes of comparison that are available; furthermore, several of these are applied to an actual example (the flora of the islands in the Bight of Benin, W Africa, as worked out by Exell) and the differing results that the various indexes give are analysed.

The study is based on the analysis of the distribution types of all Pacific genera. The designation of the types inevitably involves a subjective element, as the author admits. I would, however, have liked to see a little more discussion on this very fundamental aspect of the work. What, *in the investigation of Pacific distributions*, is the significance of distinguishing between type 4, Old World genera, and type 4a, Indo-Australian genera that differ only in being absent from Africa?

The actual subdivisions of the Pacific area now proposed by Dr van Balgooy do not differ very noticeably from those he accepted in his preliminary study (in Blumea 10: 385–420, 1960). Furthermore, there is a fair measure of agreement with the scheme proposed by R. F. Thorne (in J. L. Gressitt, Pacific Basin Biogeography, 311–354: 1963). New Caledonia is, however, attached to the Oriental (Malesian) region of the Palaeotropic Kingdom by Thorne, but is treated as an independent region of the Australian Kingdom by van Balgooy. To find an area, about whose qualities there is little dispute, assigned to different biogeographical *kingdoms*, emphasises the man-made problems of a hierarchical classification. It comes, in fact, as a shock that the Pacific area contains portions of no less than five phytogeographical kingdoms. If we are going to have a hierarchy of subdivisions, we must clearly learn to read it in a way quite different from a taxonomic hierarchy. The modern placing of Callitrichaceae next to Labiatae in Tubiflorae, rather than alongside Halorrhagidaceae in Myrtales, implies that the resemblances to the latter group lack validity. The allocation of New Caledonia to one kingdom or another entails a judgment on which relationship is preponderant: it in no way denies the validity of the lesser component.

The historical development of the Pacific flora is treated by Dr van Balgooy with deliberate brevity. He concludes, on balance, that the patterns of distribution are most easily explained by the earlier existence of extensive archipelagoes of high islands. Differences of opinion here are differences of degree, balance and expression. Thorne favours long-distance dispersal helped by more extensive archipelagoes; van Balgooy archipelagoes helped by medium-distance dispersal, and this is no more than is recently demanded by van Steenis (in Blumea 19: 65–98, 1971). There is, however, a decided divergence of opinion on the pattern of migrations. Van Steenis says quite categorically that plants move as part of the vegetation, not alone; and, as I understand him (he does not discuss this in detail), van Balgooy would agree. Thorne, and with him Fosberg and Carlquist, seems to favour the independent dispersal of organisms from one island to another. The situation varies from plant to plant. Ecological requirements would often demand that under independent migration species have moved in an appropriate sequence; when that is so the concept is more difficult to support. But this lies outside Dr van Balgooy's terms of reference. He has set out to classify the islands of the Pacific on a phytogeographical basis. He has done a splendid piece of work and, however much argument may ensue on details of interpretation, any major advance in this field now clearly awaits data at the specific level.

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* Plant Geography of the Pacific by M. M. J. van Balgooy. Blumea Supplement volume VI: pp. 222, figs. 45. Librarian, Rijksherbarium, Schelpenkade 6, Leyden, Netherlands: price Dfl. 45 (not for exchange).