

tween environmental changes and speciation on a global scale. Understanding of these phenomena, so ably developed for simple island situations by E. O. Wilson and the late Robert MacArthur, is still too simplistic to cope with the complexities of continents. Given that one of the most difficult tasks facing biogeographers is the application of the principles of population genetics and evolutionary ecology to these great historical problems, this volume will provide the creative with countless ideas.

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Phytogeography Reactivated

Taxonomy, Phytogeography and Evolution. A conference, Manchester, England, Sept. 1971. D. H. VALENTINE, Ed. Academic Press, New York, 1972. xii, 432 pp., illus. \$22.

Floristics and Paleofloristics of Asia and Eastern North America. Proceedings of symposia, Seattle, Wash., and Corvallis, Ore., Aug. 1969. ALAN GRAHAM, Ed. Elsevier, New York, 1972. xii, 278 pp., illus. \$25.

For many decades of this century the field of plant geography has been somnolent if not moribund. Cain's excellent and dynamic *Foundations of Plant Geography* published in 1944 was succeeded by a few retrograde, specialized texts that did little to stimulate or define the discipline. However, the recent revival of concern with continental drift and the effects of paleobotanical heterodoxies have assisted in a substantial revival of interest in phytogeography. The field now is clearly concerned with dynamics, explanation, and fresh perspectives that go well beyond the rather sterile listings of where plants grow.

The 25 papers contained in *Taxonomy, Phytogeography and Evolution* deal with aspects of such general topics as major geographical disjunctions in relation to evolution and migration, endemism, and "geographical" evolution in genera and families of special interest (in this case, the Gesneriaceae, *Epilobium*, *Nothofagus*, *Alchemilla*, and the Combretaceae) and with a series of "special topics" such as the migration of weeds, the history and ecology of continental European plants, floristic connections between portions of Britain and France, and computational methods in the study of plant

distributions. Unfortunately, virtually no attention is given to the important contributions of physiological ecology, phytochemistry, or paleobotany to our understanding of past and present plant distributions. Despite the arbitrary segregation of the papers according to various section headings, two prominent themes emerge. One is a concern with the mode of origin of major disjunctions, such as those that exist between Eurasian and North American forests (J. Kornaš), North America, Japan, and the Himalayas (H. Hara), the Restionaceae of Africa, Australia, and South America (D. Cutler), American amphitropical deserts (O. T. Solbrig), and the cool temperate floras of the Southern Hemisphere (D. M. Moore). The other is a preoccupation with insular floras, evidenced by the discussions of the Canary Islands (D. Bramwell), Crete (W. Greuter), Hawaii (G. Gillett), Caribbean Islands (B. Morley), New Zealand (P. H. Raven), and the Aegean (A. Strid). Even the European mountains (C. Favarger), West African mountains (J. K. Morton), and California (H. Lewis) fall into this "island" category.

Many of the contributions are reviews of the work of the individual contributors and their students and as such are of restricted novelty or scope. Solbrig's paper is of special interest because it presents the background and future plans for a multidisciplinary study of American amphitropical desert disjunctions, and is particularly valuable because of the methodological précis given in it. Moore's extensive discussion of Southern Hemisphere floras goes far beyond phenomenology in describing various distributional patterns that recur in diverse genera and interprets these in the light of the biological characteristics of various taxa and the geological and climatic history of the large region concerned. Bramwell argues convincingly that the endemic flora of the Canary Islands is an old one and that the woody habit of many endemic genera is relict and not derived, as it is in the Hawaiian flora.

The papers that constitute this book do not hang together particularly well, and in fact a general theme to the book is not clearly evident. A concluding synthesis and final interpretative chapter would have been of great value to the general reader and perhaps would have more solidly legitimized the title of the book.

Floristics and Paleofloristics of Asia

and *Eastern North America* is perhaps more successful because of its more restricted sphere of coverage and the greater strength and mutual complementation of the major papers that it contains, though a few of the contributions are of only minor interest. Recognition of the strong floristic affinities between eastern Asia and eastern North America goes back as far as the middle of the 18th century, but it is Asa Gray who is generally credited with bringing these affinities to the attention of biologists. Gray's two short papers—reprinted in this volume—provide the theme and historical inspiration for this collection of papers.

Graham introduces the origin and the history of the recognition of the floristic affinities between eastern Asia and eastern North America and discusses the errors of interpretation that have been introduced into paleobotanical studies by misidentifications and incorrect age determinations, and further reflects his skepticism of the Geoflora concept by stating that the Mixed Mesophytic forest and its Cenozoic history are "too complex to be adequately expressed by a single floristic theory." Wolfe, in his interpretation of Alaskan Tertiary floras, goes even further in his statement that the "confusion of the fundamental concepts of vegetation and flora has confused the history of the Mixed Mesophytic forest" and that this confusion is inherent in the concept of the Arcto-Tertiary Geoflora.

Evaluation of the extensive paleobotanical information given for Alaska, the Rocky Mountains, and Japan, of the neobotanical information given concerning the phytogeography of northeastern Asia, and of the American-Asian affinities among flowering plants, ferns, bryophytes, and lichens leads to the inevitable conclusion that the origin of the strong floristic affinities between Asia and North America is not as well understood as one might assume from much of the literature on the subject. As Graham points out, "rather than providing a final explanatory statement for a classic pattern of disjunct distributions, the data challenges the validity of many established and accepted concepts."

The overall flavor of this second book is strongly partisan, however, and one suspects that the Geoflorists will be heard from again.

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