# Book Reviews

*Abbreviated Titles of Biological Journals.* Third edition, compiled by P. C. Williams. Pp. viii + 47, interleaved. Biological Council, London. 1968. Price 12s. 6d.

This booklet has been produced for the convenience of contributors to, and editors of, journals covering a wide field of biology and medicine, with the aim of guiding them quickly to accepted abbreviations of titles of journals most likely to be referred to. It is essentially an alphabetical listing of the full titles of the 1420 journals most frequently cited in 45 periodical publications of societies affiliated to the Biological Council (therefore with a strong British bias), together with their corresponding abbreviations given in the fourth edition (1963–1965) of the *World List of Scientific Periodicals*. As a concession to those who prefer the American Standards Institute abbreviations to those of the British *World List*, the American version is also indicated in brackets if it differs from the *World List* abbreviation. The list is interleaved with blank pages to allow additional entries to be made.

To those not involved in such problems it may come as a surprise to learn that abbreviation of journal titles has been a matter for prolonged argument and international debate. It does not seem to matter particularly to most people whether one cites *Am. J. Bot.*, *Amer. J. Bot.*, *Amer. Journ. Bot.* or the full *American Journal of Botany*, so long as the meaning is clear. However, librarians and computer feeders seem to be unanimous in their wish to impose a uniform system of abbreviations on the whole world, which might seem a laudable object were it not for the fact that they cannot agree among themselves as to which system should be adopted. Some of the problems are lucidly and realistically discussed in the Foreword to this booklet by the compiler. Here the main question is seen to be whether one should settle for the British (*World List*) system or the American system, and as neither one nor the other has any conclusive argument in its favour the present booklet is a compromise between the two. But having myself been brought up in the tradition of taxonomic botany I find both these systems frequently exasperating from both practical and aesthetic points of view. The long-established conventions used in a vast body of literature in taxonomic botany are at variance with these more recently devised systems in many of the principles involved. In the last five years, extensive lists of journal abbreviations have been published in this country in *Flora Europaea* (vol. 1, 1964; vol. 2, 1968), in the *Index to European Taxonomic Literature* (annually since 1966) and in D. H. Kent's *Index to Botanical Monographs* (1967), while in America the Hunt Botanical Library has produced its colossal *Botanico-Periodicum-Huntianum* (1968), reviewed elsewhere in this journal, and in Russia T. Zaikonnikova has produced a shorter list in *Nov. Sist. Vyss. Rast.* (*Leningrad*) (1968). Although each of these differs from the others in minor details they all reflect the long tradition of taxonomic botany and differ extensively from the *World List* and A.S.I. abbreviations. The problem of selecting one universally acceptable system of abbreviations is thus far from being even a single choice between two alternatives, and at the moment international standardization seems to be only a vain hope. We insular British should at any rate note the warning given in the Foreword of this book that some of the abbreviations we happily recommend make words far from acceptable in polite company in France.

Perhaps the main objection to the *World List* abbreviations is to their use of contractions (particularly those without a full-stop after them) as distinct from abbreviations. Even people relatively familiar with the idea may be stumped by such contractions as *Archo*, *Bd*, *Fd*, *Fdn*, *Fm*, *Reprium* and *Wld* for *Archivio*, *Board*, *Food*, *Federation*, *Farm*, *Repertorium* and *World* (not Wild), while *Jb.*, *Jbr.*, *Mschr.*, *Rc.*, *Zbl.* and *dt.* for *Jahrbücher*, *Jahresbericht*, *Monatschrift*, *Rendiconti*, *Zentralblatt* and *deutsch* may take

even more getting used to. Abbreviation seems to have become an end in itself, and intelligibility is sacrificed for no apparent gain. If one must distinguish between Annales and Annalen why cannot one write them in full instead of the cumbersome Annls and Annln? The space saved is immaterial and even a computer can cope with the two extra letters with no difficulty. The decapitalisation of initial letters is of no practical importance but is an added aggravation, particularly in proper names as in *Proc. bot. Soc. Br. Isl.* And in view of this last abbreviation it is difficult to see why *bot.* becomes *botl* (no full-stop!) in *Rep. botl Soc. Exch. Club Br. Isl.* More important, however, is the use of a now incorrect title such as *Repertorium novarum specierum regni vegetabilis*, the original title of what changed to *Feddes Repertorium* (which is not given) in 1943. Similarly, in the American equivalents given, the adoption of the titles *Allgemeine botanische Zeitung* (which is in fact the subtitle) and *Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* for *Flora (Jena)* and *Botanischer Jahrbücher* respectively, is to be greatly deplored. It is clear, of course, that these faults cannot be attributed to the compiler of the book reviewed here but have originated in the primary works from which this list is taken.

For those who want a handy guide to the *World List* or A.S.I. abbreviations of the commoner biological and medical journals used in this country this booklet is a well-compiled, well-produced and useful tool. The present reviewer, however, and many others concerned in botanical bibliography, will regard many of the abbreviations offered here with great misgivings. If one standard list is to be adopted by taxonomic botanists then the *Botanico-periodicum-Huntianum* seems to be the most acceptable on account of its much more sensible abbreviations and excellent comprehensiveness.

R. K. BRUMMITT.

*The Use of Biological Literature.* R. T. Bottle and H. V. Wyatt. Pp. ix + 286. Butterworths, London. 1966. Price £2. 18s. 0d.

This is the first book to attempt the formidable task of providing a guide to the use of the literature of the various aspects of pure and applied biology, a field with numerous interdisciplinary connections. The editors have adopted a form of presentation of the material that makes it readable and every working biologist should read it. On the other hand, this method detracts from its use as a reference work. This fault would have been lessened if all chapters had been provided with an Appendix of reference works like that provided by Hambler for Chapter 7.

The editors were the first to organise a course on the use of biological literature at Bradford University, a course, however, rather biased towards biochemistry and pharmacy, and of comparatively little value to the systematist. The editors inform us that this volume is intended for use in planning courses for graduates and undergraduates and they have accordingly appended sample questions for use in practical work. I hope this volume will stimulate the provision of such courses in the use of biological literature, both for those still at university and also for those who have already started their research careers. No written guide, however good, is a substitute for supervised practical work.

It is obvious that the several contributors had a more detailed knowledge of some aspects of the subject that they were covering than they had for others. It would have enhanced the value of this book if the editors had submitted their treatments to other experts for comment and addition of important omissions, thereby producing a more even treatment of the whole field. In general, I consider that agriculture and ecology should have been more adequately covered and that the more important guides to palaeontology, palaeozoology, palaeobotany and anthropology should have been, included.

The editors have allowed their contributors to cover their subject in their own way. Hambler's coverage of botany is therefore quite different from that of Archer for zoology. Hambler's title "Taxonomy, treatises and museums" bears little relationship to its content. He largely restricts his coverage to volumes relating to the British flora and

states that he is omitting the taxonomist's guides. Why? The title of the book implies it is a complete guide to biological literature and are there no budding taxonomists among the graduates and undergraduates at our Universities? Surely they need to be trained in the use of their particular tools, as much as other biologists! It is no doubt because of this limitation that the following important taxonomic references have been omitted. They are the encyclopaedic treatments of the plant world—Engler's *Das Pflanzenreich* and *Die natürlichen Pflanzenfamilien*; De Candolle's *Prodromus systematis naturalis regni vegetabilis*; Bentham and Hooker's *Genera plantarum*, etc. Obviously for the same reason, Hambler does not mention the *Index Nominum Genericorum* and the important microfiche reproductions of several famous herbaria including that of the most famous of all systematic botanists, Linnaeus. The *Bibliography of Agriculture* is not referred to in this chapter, in spite of the fact that a number of British taxonomic botanists consider that it is the best guide to date to taxonomic literature. Surely such journals as the *American Fern Journal*, *Revue algologique*, *Revue bryologique et lichénologique* and *Revue mycologique*, which contain abstracts covering the literature on the lower plant groups, should have been included in this chapter and also in the chapter on Abstracts, Indexes, etc. Just's *Botanisches Jahresberichte* and *Botanisches Zentralblatt* are not mentioned by Hambler but are given in the chapter on Abstracts, etc., where these services are stated erroneously to be the current German ones; they both "died" during the war. The chapter on Abstracts etc., does not mention the German service which is currently being published, *Excerpta botanica*; on the other hand this is given by Hambler. This is a good example of the lack of editorial control which is unfortunately evident elsewhere in this volume. Hambler, to my surprise, does not include in his appendix of reference works such important general titles as Tansley's *The British Islands and their Vegetation*, Good's *Geography of the flowering plants;* Engler's *Die Vegetation der Erde* and Kerner & Oliver's *The natural history of plants*. Nor does he include the very important guides to literature: Pritzel's *Thesaurus Literature Botanicae* and the library catalogues of the British Museum (Nat. Hist.), Royal Botanic Gardens, Kew, Linnean Society and Royal Horticultural Society.

No two historians would write the same brief guide to the development of plant science. I personally regret the following omissions from the chapter on history and biography: the very important role played by scientific societies and their publications, especially that of our own Royal Society; planned natural history exploration, initiated in this country by Sir Joseph Banks, which in later years gave opportunity to travel to such famous naturalists as Charles Darwin and has led to the superb collections of natural history specimens at such institutions as the British Museum (Nat. Hist.) and the Royal Botanic Gardens, Kew; finally the outstanding contribution to the advancement of systematic botany and zoology made by Carl Linnaeus. In the appendix of references to this chapter I was surprised to find that Britten and Boulger's *A Biographical Index to deceased British and Irish botanists* was omitted.

Dr Wyatt in his epilogue provides a stimulating discussion of the need, the value and the methods of communication. This, I feel, would have been better placed as a prologue. Finally, I am sorry that the editors decided to limit the scope of the book to *The Use of Biological Literature*. I hope they will therefore consider widening the coverage in future editions, and also, by the assistance of a wider range of contributors, produce a more comprehensive and balanced treatment of the subject.

PHYLLIS I. EDWARDS.

*The Friends of John Gerard (1545-1612), Surgeon and Botanist.* Robert H. Jeffers. Pp. 99. The Herb Grower Press, Falls Village, Connecticut. 1967. Available in Britain from Daniel Lloyd, 4 Hillcrest Avenue, Chertsey, Surrey. Price £1. 10s. 0d.

Mr Jeffers, like many others before him, has fallen under the spell of John Gerard and his *Herball*. This new book is an attempt to defend Gerard against well-founded

criticism of his scientific standards and conduct as an author, and with this in mind the events of his life are set out in chronological sequence. It is, however, unlikely that many readers will be persuaded to modify their acceptance of balanced and scholars' judgments of Gerard's virtues and failings such as those set out in C. E. Raven, *English Naturalists from Neckam to Ray* (1947).

The importance of Mr Jeffers' book is that it is almost the first attempt to make use of local record offices for botanical research. It is a reminder that even at this late stage in collecting information about early naturalists, the methods and sources employed by local historians offer scope for further discoveries. Mr Jeffers has produced new facts about Gerard and his contemporaries (his field extended far beyond Gerard's "friends") by consulting sources such as *A London Subsidy Roll, 1589*, which were not available to earlier writers. Unfortunately the absence of page references makes it difficult to check most of his statements and to ascertain which of them are new. Failure to include an index also reduces the value of the book.

No reasons are given for the acceptance of the unlikely record of *Veronica spicata* from Barnes (p. 34). This also appears in How's *Phytologia*, being based on *Veronica recta minima*, and has long being regarded as an undoubted error (cf. Boulger in Salmon, C. E. (1931) *Flora of Surrey*, p. 43. London). Mr Jeffers goes on to state that Gerard found *Veronica spicata* at Barnes independent of Stephen Bredwell.

Mr Jeffers has embarked on a promising line of research. It is to be hoped that he will continue his work in record offices and publish it with full references so that it can be put to maximum use.

J. E. LOUSLEY.

*Flora Europaea. Volume 2. Rosaceae to Umbelliferae.* Edited by T. G. Tutin, V. H. Heywood, N. A. Burges, D. M. Moore, D. H. Valentine, S. M. Walters and D. A. Webb, with the assistance of P. W. Ball, A. O. Chater and I. K. Ferguson. Pp. xxvii + 455 with 5 maps. Cambridge University Press, London. 1968. Price £7. 7s. 0d.

As the scope and aims and the origin of *Flora Europaea* have already been explained in detail in this journal (*cf. Watsonia*, **6**: 319, (1967)), this review will welcome only the second volume. This will be cheered by all botanists who have used the first one with success. They will feel as satisfied in using the new one, which appears only 4 years later. The editorial committee, now increased by D. M. Moore (Reading), and the 51 contributors have done a remarkable work, as some large families are included: Rosaceae, Leguminosae, Umbelliferae. The volume covers the second part of Rosales, the Geraniales, Rutales, Sapindales, Celastrales, Rhamnales, Malvales, Thymelaeales, Guttiferales, Violales, Cactales, Myrtales and Umbelliflorae, and includes the Cucurbitales as well.

In the apogamous genera the leading species are described and keyed and their minor relatives mentioned beneath them without description but with full citation. *Rubus* has been evaluated by Y. Heslop-Harrison, *Alchemilla* by S. M. Walters and B. Pawlowski and *Sorbus* by E. F. Warburg and Z. E. Karpati. It may be worth while to mention the larger genera in this volume: *Astragalus*, worked out by A. O. Chater, *Vicia* and *Lathyrus* by P. W. Ball, *Trifolium* by D. E. Coombe, *Hypericum* by N. K. B. Robson and *Viola* by D. H. Valentine, H. Merxmüller and A. Schmidt.—All information about characters, habitat and distribution is given in the same approved way as before; and so are the maps, the family key and the general chapters that have been repeated from the first volume, partly in a more concise form, and completed by the few necessary additions.

One essential advantage of this work is that it elucidates the taxonomic and geographical connections and graduations of taxa that appear too much isolated in local floras. May it be used by many people, and may its good progress continue.

F. MARKGRAF.

*Humming Birds and their Flowers.* K. A. Grant and V. Grant. Pp. 115. Columbia University Press, New York and London. 1968. Price £7. 17s. 0d.

Verne Grant started as a biosystematist with a strong grounding in evolutionary genetics and produced some valuable scientific books before entering the field of floral ecology. He and his wife proceeded to make observations in the field and synthesized information from all angles, first for the Polemoniaceae as a family, now for a different cross-section of the ecosystem.

Their joint investigations into the interactions between flowers and humming birds (mainly in the western U.S.A.), already published, deserve to be reproduced in the present colourful compilation and presented to a broader public willing to digest fully the scientific material.

The plates (75 colour photographs, mainly of birds visiting flowers) are attractive and also illustrative of the importance of ornithophily in the U.S.A. (41 proven and 86 probable cases), though in most places (as far as Alaska) the birds are migratory components of the ecosystem. The genus *Castilleja* predominates, as basically bird-adapted. *Penstemon* and *Aquilegia* are of secondary importance, being bird-adapted in some species only. One has seen sharper photographs, but those presented have a special flavour, the catching of purely natural conditions.

The adaptive evolutionary changes in the bird-flowers are analysed, along with the taxonomy, distribution, anatomy and ethology of their bird-partners. The lack of flower-constancy in humming birds is recognised as leading to mixed visits. The consequent visits to many flowers of one plant are also described. Possible regulations, ensuring cross-pollination nevertheless, are mentioned briefly.

The prevalence of convergent red coloration is causally analysed. The possibilities of (i) mere preference for red or (ii) better perception by birds and better contrast with foliage (*cf.* red berries for fructivorous birds) are dismissed, on the grounds that there are some counter-indications and also (not entirely convincing) that in tropical regions with resident flower birds, non-red flowers are frequently visited. The authors favour a synecological explanation, viz. that the migrant birds in the north require a common signal, indicating "their" species of flowers, which may occur widely scattered among others and are preferred for their quantity of nectar, which is greater than in insect-flowers. Other colours are already associated with insects (butterfly-red is apparently negligible). In this way the flowers, too, obtain specificity and a way out in the competition for pollinators.

The Grants found, after quantitative elaboration of their observations, that mountain regions are seasonal collecting grounds for birds and are thus also regions where ornithophiles from diverse plant genera congregate. One might make the objection that the sympatric development of many ornithophiles in one genus remains unexplained, on account of the lack of flower-constancy and of other speciating factors in the visitors. The authors answer that even in *Castilleja* the many species are rarely sympatric and that (especially in the tropics) length of bill and tube and also differences in the biotope provide stronger causes of speciation.

Conclusion: The book is a modern, causal approach to biosystematics and floral ecology, important to evolutionists, both botanists and zoologists, and, moreover, highly enjoyable for all general naturalists.

L. VAN DER PIJL.

*Welsh Ferns, Clubmosses, Quillworts and Horsetails.* H. A. Hyde and A. E. Wade, fifth edition by S. G. Harrison. Pp. xii + 178 with 14 plates and 85 text figures. National Museum of Wales. Cardiff. 1969. Price £1. 5s. 0d.

*Welsh Ferns* was first published in 1940 and quickly established its reputation as the best descriptive systematic account of British ferns, for despite its title all British species were included. The call for three new editions during the succeeding 22 years was proof of its soundness and utility. The present edition, revised, expanded and

rearranged by the new Keeper of Botany at Cardiff, differs more from previous editions than any of these did from one another.

Welsh Ferns has now become Welsh Pteridophytes by inclusion of all species of *Lycopodium*, *Selaginella*, *Isoetes* and *Equisetum*. These cover 21 species the descriptive and distributional treatment of which conforms with that of the ferns. The ferns proper have been rearranged according to Pichi-Sermolli's system of classification. These changes, together with the necessarily expanded introduction and key to genera, plus the inclusion of much new matter covering additional species, subspecies and hybrids, revised Welsh records and textual emendations and additions, have necessitated resetting the pages throughout the book.

The descriptions are models of clarity and the overall standard of presentation of information is so consistently high that few points call for comment other than praise. The usual data covering distribution in Wales and beyond have been accidentally omitted after *Polypodium vulgare*. If four variants of *Equisetum arvense* qualify for inclusion, why not also the striking *E. palustre* var. *polystachyum* which is plentiful at Newborough Warren? Recent critical work on *Asplenium trichomanes* and *Asplenium* hybrids is incorporated in the account of this genus and *Dryopteris assimilis* is added to the list of *Dryopteris* species. But how long will it be before *Athyrium flexile* receives its just recognition as a distinct species, a status unanimously accorded to it by all who have seen the living plant but rejected by those who know it only as herbarium specimens? In cultivation at Leeds it retained all its peculiarities unaltered for many years. The negative evidence of a chromosome complement identical with that of *A. distentifolium* has been largely responsible for denying to it its rightful status.

Fifteen text figures have been supplied to cover the additional groups included in this edition and two more plates have also been added. The drawings combine artistic merit with diagnostic utility, though Fig. 21 will require replacing in the next edition for it depicts the large and small leaves of *Selaginella kraussiana* in the opposite relationship to one another to those they actually occupy. Is it not time also that the dusky and too familiar figures illustrating the life-history of the Male Fern, which have done service for close on a century, were now replaced by drawings more in harmony with those which illuminate the rest of the book? These are however minor criticisms of a volume which is likely to remain for a long time to come the standard work on British Pteridophytes. Mr Harrison deserves congratulations and thanks for adding still further to the value of a book of proved worth.

W. A. SLEDGE.

*The Identification of Flowering Plant Families*. P. H. Davis and J. Cullen. Pp. 122 with 6 text figures. Oliver and Boyd, Ltd., Edinburgh and London. 1965. Price 12s. 6d.

This book is divided into 10 parts: Preface, introduction, usage of terms, examining the plant, using the key, key to the groups, arrangement and description of families, further identification, glossary, and index. A list of abbreviations used is on the inside of the back cover.

As indicated in the preface, the keys were written for use in the North Temperate regions. Mexico, Florida, most of India, and subtropical China are excluded. I and my students have used the keys extensively in two parts of the United States, central California and western Montana, for two seasons. The keys work very well for plants of these regions with very few exceptions. For instance, some western North American species of Hydrophyllaceae have 1-celled gynœcia and hence cannot be determined readily in the key.

The section entitled "Usage of terms" is excellent and the discussion of the terms *hypogynous*, *perigynous*, and *epigynous* is the best I know of in English. Other sections are useful and well done. This book should receive wide usage in North America, as well as in Europe.

JOHN H. THOMAS.