Notes RBG Edinb. 40(1):222–223 (1982)

BOOK REVIEW

Exceptions that prove the rule? The identification of the family to which an unknown flowering plant belongs is the first step in its complete determination. Most Floras of areas of reasonable size provide keys to the families which they contain, and there are several works which provide partial coverage of the flowering plant families of the world. Comprehensive keys to all the known families are not often produced, so the appearance of the present volume* is to be welcomed. Its four Dutch authors, making use of their experience both of practising and teaching taxonomy, have taken as their basis the 2nd edition of F. Thonner's *Anleitung zum Bestimmen der Familien der Blütenpflanzen* (1917) and have extended it and brought it up to date. In doing so, they pay tribute to Thonner's talents, which, up till now, have remained rather hidden (at least in the English-speaking world), owing to the restricted distribution given to his publications. In four short chapters (Franz Thonner — Life (1863–1928), Bibliography, Derived Works and Eponymy) they give a summary of the information on this remarkable man's life and works which should help to re-establish his reputation as one of the more notable taxonomists of the period 1880–1930.

As well as these chapters on Thonner, the book contains its own introduction, a short section on using the key, and an extended and partially illustrated glossary; this last has to be consulted very carefully, as the usage of some terms is unusual, not to say idiosyncratic. The old warhorses 'hypogynous', 'perigynous' and 'epigynous' are well to the fore here, and in plate 1 figure 6 a flower is illustrated which is captioned as 'epigynous, ovary superior' — a description generally regarded as a contradiction in terms. Similarly, the use of the term 'epipetalous' to mean '[stamens] inserted before the petals' (i.e. on the same radii as them) will be confusing for British users at least — others too, perhaps — who use the term 'antepetalous' for the condition described, reserving 'epipetalous' to describe the situation in which the stamens are adnate to the corolla. However, it seems that if the terms are used as defined, then the key can be worked. Users are strongly recommended to make frequent reference to the glossary!

The substance of the book is, of course, the key itself. This is of the bracketed type, strictly dichotomous, and forms one continuous block from couplet 1 to couplet 2117, occupying a total of 197 pages out of the 257 of which the book is made up. The families recognised are essentially those of the 12th edition of *Syllabus der Pflanzenfamilien* ed. 12 (ed. H. Melchior, 1964). However, many segregate families are also included, in passing as it were, by the use of names in parentheses at the ends of the leads, e.g.:

1512....Fruit a capsule — S. Africa (*Montiniaceae*)....**Saxifragaceae**

so the total number of families that can be identified using the key is considerably larger than the number recognised in the *Syllabus*. In the Monocotyledons, for example, the *Syllabus* includes 51 families, and these appear in bold type in the key. As well as these, another 31 segregate families can be identified by means of the names given in parentheses. Some subfamilies, tribes and genera can be identified in the same way.

As far as I have been able to test it, using some well-known, 'troublesome' genera, and bearing in mind the problems of terminology already mentioned, the key works extremely well, as long as the material to be determined is reasonably complete. Though the format of 2117 couplets is unwieldy, one soon learns the important divisions, which are, in fact, reprinted separately as a 'Concise Key to the Major Groupings' before the main key itself. Some of the couplets are a bit difficult to apply, e.g. No. 1980, which splits off part of the Scrophulariaceae from parts of the Solanaceae and Bignoniaceae. These distinctions are, however, notoriously difficult to put into words in a way that is both simple and comprehensive, and a careful reading of the leads (and, of course, examination of the specimen), is all that is necessary to obtain good results. The key is indexed to couplet numbers, so that working it backwards is not too difficult.

This book, then, is an extremely useful one, and I am sure it will form a frequently used part of the library of any taxonomist working with flowering plants. It is not, on the whole, suitable for students unless they have already achieved a considerable degree of taxonomic sophistication.

The appearance of such a key, which takes 2117 couplets to identify 527 families (I take the number from a count of the names in the index) so soon after Corner's stimulating paper on the higher levels of the taxonomic hierarchy (Angiosperm Classification and Phylogeny: a Criticism, *Bot. Journ. Linn.*

*R. Geesink, A.J.M. Leeuwenberg, C.E. Ridsdale & J.F. Veldkamp, *Thonner's Analytical Key to the Families of Flowering Plants*. PUDOC, Centre for Agricultural Publishing and Documentation, Wageningen, 1981. Also published as volume 5 of the Leiden Botanical Series, Leiden University Press. £8.50.

Soc. 82(1): 81–87, 1981) prompts a few thoughts on the families themselves and how they should be distinguished. This is not the place for great detail, but it is odd that it takes, on average, about four couplets to key out each family completely. Of course, the range around this mean is very large: many small families are keyed out only once, e.g. Theligoniaceae (I adopt the spelling used in the book) and Velloziaceae; others are keyed out very many times, e.g. Saxifragaceae (sensu lato), which makes 57 appearances — some of these, admittedly, being separations of segregates within the broad family, such as No. 508, which separates the Saxifragoideae from the segregate family Lepuropetalaceae. On this basis it seems that much of the key is devoted to separating out the exceptional cases, which must be at least as numerous (in terms of number of entries) as the non-exceptional. It is, of course, axiomatic that a key is a device for identification and not a classification. But, nonetheless, a key is a written expression of certain useful abstractions from a classification, and the fact that so many families have exceptional subgroups which require multiple entries in it should serve to make us think again about the integrity of the families we use, and the value of the category in terms of identification. The value of multi-access keys (polyclaves) is also highlighted by the length of this key, though those that have so far been produced are cumbersome and inconvenient to use; surely it is not beyond the wit of taxonomists and printers to design a multi-access key that can be laid out typographically so that it can be produced in normally readable form?

Finally, the book will be a very useful working tool for the professional taxonomist, not only for its value in identification, but also for the thought which its use stimulates. It is well produced and reasonably cheap; the authors and publishers are to be congratulated on its publication.

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