

ecologists. The introductory chapters are much expanded, with fully labelled illustrations and good explanations of systematic groups, classifications and general botany. The main bulk of the book contains much the same information as the original work: family by family accounts of detailed description, classification, distribution, general features and economic importance, supplemented by numerous line drawings. Some of the original artwork has been redrawn (*Lamium album*, *Malva sylvestris* and *Symphytum officinale*), and a few new species have been included (*Ajuga reptans*, *Cyclamen persicum*, *Helleborus foetidus* and *Silene dioica*). The choice of a bright white background has increased the clarity of the line drawings compared with the off-white original, but I feel that several other of the 'heavier' drawings should also have been redrawn: *Antirrhinum majus*, *Arum maculatum*, *Iris pseudacorus*, *Salix caprea* and *Vicia faba* are particularly poor. The variation in quality and style of illustrations through the book is quite marked. Additional plates of flowers of genera in the *Labiatae*, *Scrophulariaceae* and *Orchidaceae* supplement these family accounts and help to cover some of the information lost. I have always considered that a major flaw with the earlier editions is the inadequate labelling of line drawings. Unfortunately this version also suffers from this. There are numerous good to excellent drawings and diagrams, but only a very few have the clear labelling that one would wish students to provide in their own work. More often than not the numbered illustrations appear on one page, with a facing page bearing the details in legends. It is left to the reader to interpret the parts illustrated, and from my experience students often get this wrong, particularly when starting out.

Classroom practicals have shown that students liked using the book, and that it gives a good coverage of the families (as most courses rely on readily available plant material the removal of many of the tropical families does not really matter). The authors have succeeded in their goal to produce a low-cost, general textbook, aimed as a basic introduction to the botany of flowering plants. I am sure it will find its way onto the bookshelves of many botany students in the years to come. Having said this I would like to stress that although the scope of this book is fine for temperate groups, it is severely limited for the tropics. There is still a pressing need for basic botanical research on tropical families, and the training of tropical botanists needs textbooks like the full *100 Families of Flowering Plants*. I hope that the plea for a third edition of '*100 Families*' which Max Walters makes in his foreword to this current version will be heeded by the publishers.

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The Identification of Flowering Plant Families. 4th edition. James Cullen.
Cambridge: Cambridge University Press. 1997. xii + 215pp. ISBN 0 521 58550 3.
£12.95 (paperback).

This book, which was first published in 1965, aimed to give a tool for flowering

plant family identification, particularly for students in botany and horticulture. It has fulfilled its aim, becoming one of the most widely used flowering plant keys. In the past it has been appreciated not only by students but also by professionals and amateurs in the fields of botany and horticulture.

The book is divided into three main sections which have been changing and improving with each successive edition. The first section introduces the reader to terminology associated with plant structure and morphology, with the aid of clear illustrations. The second section is a key to 286 flowering plant families which are described in a short synoptic form in the third and final section.

This new edition is without doubt superior to the last. It is more thorough, clearer, and easier to understand, and thus essentially more user friendly. The first chapter has been greatly extended compared with previous editions, to include an introduction not only to the terminology relevant to flower structure and morphology, but also to that associated with vegetative structures and habit. The family synopses, which occupy almost the entire second half of the book and which briefly describe the diagnostic characters of 286 families, have also been noticeably restructured. The abbreviations which riddled the descriptions in other editions have been eliminated in favour of a long-hand format which makes the descriptions much easier to read and understand. Information on distribution, number of taxa and uses has been added, giving depth to each family and making the descriptions overall more interesting.

The family key is the centrepiece of this work and it generally incorporates characters which are easily recognized, making the key easy to use and leading to successful identifications. Unfortunately, the reader might find certain dichotomies disconcerting and confusing, especially if faced with the identification of small-flowered specimens. Examples of these dichotomies frequently involve characters such as ovule number and placentation which are hard to observe without a microscope or lens. Understandably these characters are very difficult to avoid, but they may be impossible to recognize, especially by an inexperienced student of botany or horticulture. However, these are not too frequent and it is hoped will not stump the user entirely. Nevertheless, this does bring to light the need for a more widespread use of vegetative characters in general family keys, even if they do not produce the clear-cut, undisputed groupings achieved through floral characters. Illustrations are also a powerful tool which should be better exploited and more frequently incorporated into keys: they would probably greatly reduce the number of erroneous identifications, especially with students and amateurs. Notwithstanding these comments (which are personal notions of what a key should embody and how it should be presented), this book continues to be the most practical and accessible approach to plant family identification and anybody with an interest in this subject should carry one of these in their back pocket at all times.