Willis re-modelled. "Willis" has become a by-word in botanical literature. Since its first publication in 1897 it has merited no less than five new editions and the last (1931) has been reprinted five times. Clearly this book has been found useful. Yet it was, like so many useful books, a thoroughly illogical one. It was not complete as a dictionary of genera and families, nor as a botanical glossary; it had a mere smattering of information on morphology, pollination mechanisms and economic botany. Yet it contained to a quite extraordinary degree miscellaneous facts that are most useful to students and general botanists.

The seventh edition* has been greatly changed. It is now a complete dictionary of genera and families, but the botanical terms, the common names and much of the miscellaneous information has disappeared. The editor has attempted to include all published generic names, whether nomenclaturally valid or not, and amongst them are a large number of variations in spelling. All are referred to their correct position and for those accepted the approximate size and distribution is given. The families are described and an outline of the classification within the larger families is also included. An especially valuable and authoritative feature is the treatment of the ferns, at and above family level, by Professor R. E. Holttum. Many pteridologists will no doubt wish that this information was available separately.

The amount of careful labour that has gone into the preparation of what is now a taxonomists' handbook must have been huge. There is nothing else like it and to many, especially those working in the newer herbaria where library facilities are limited, it will be of immense value.

The change in the nature of the new "Willis", from a students' companion to a specialist's work of reference is shown by an examination of some pages at random. Merely avoiding those with family descriptions, I examined six and classified the entries as either good genera or synonyms, including spelling variants etc. It is not unfair to say that the students' interest is limited to the first group. The results were, giving the good genera first, 11:36, 11:26, 16:26, 10:33, 19:22, 14:28; or in total 87:171. That means about two-thirds of the entries fall into the second group: more than any student wants to carry around with him.

Mr. Shaw is a strong advocate for the recognition of small groups and anomalous genera as independent families. This does have one advantage: it makes the writing of concise family descriptions very much easier (and the family descriptions are an important feature of this book). Unfortunately, however, he gives us no system into which these new families can be fitted. The appendix includes synopses of the systems of Engler & Prantl and Bentham & Hooker: but one cannot get into these systems from the Dictionary. For instance for Asteropeiaceae, Bonnetiaceae, Pelliceriaceae, Tetrameristaceae I had to have recourse to the last edition of the Syllabus der Pflanzerfamilien (which happened to be at hand) to find out what these families were. If only Shaw had followed Willis's own practice and put in a reference to the two major systems when necessary, the work would have been much more valuable, especially as a herbarium guide. As it is, for the purpose of relating a generic name to a position in the system, edition six is still the more useful volume. The vast increase in families certainly directs attention to some anomalous plants, but it has been carried so far that no one can possibly remember them all. It may perhaps serve a purpose in emphasising the crying need for a good classification of angiosperm families into orders: but the need would not be nearly so great if the family were treated with more respect. We must have a sensible framework in which to think and teach; all these little families are in modern communications jargon, mere 'noise' in the system.

No work on this scale avoids a good many errors in matters of detail and this one is not an exception, though the general standard of accuracy is high. Geographical distribution is always a weak spot, for the task of checking it thoroughly would be enormous. Nevertheless it is disconcerting to find that *Caltha* has been deprived of its range in the southern hemisphere (about 12 species in S. America and New Zealand); that *Geissaspis* is not recorded from Africa (where there are some 30 species) and that *Scabiosa* stops short in the mountains of East Africa (there are some 10 species in South Africa, 9 of them endemic), to mention only three examples. On the taxonomic level

* A dictionary of the flowering plants and ferns. By J. C. Willis. Seventh edition, revised by H. K. Airy Shaw. Pp. xxii + 1214 + liii. University Press, Cambridge. 1966. Price £5.

when *Gesneria* is returned to its Linnaean typification (as has been done by transferring the species included in Maurtius's concept of it to *Rechsteineria*), then it covers *Pentarhaphia* Lindl. which should not be shown as a distinct genus. Mr. Shaw suggests under Theaceae that the two main groups of genera deserve recognition as families; Ternstroemiaceae and Camelliaceae are in fact entered independently elsewhere. But what form of nomenclature permits the restricted Theaceae to be called by the later name Camelliaceae I do not understand. The attempt to cope satisfactorily (but neutrally) with Bremekamp's transfer of Nelsonioideae from Acanthaceae to Scrophulariaceae is too much for the editor: we find *Elythraria* D. Dietr. = *Elytraria* Michx. (Acanthac.), but *Elythraria* Michx. is placed without query in *Scrophulariaceae;* so is *Nelsonia* itself. *Staurogyne* is referred alternatively: "Acanthaceae or Scrophulariaceae". Under the family names, however, these genera are only accommodated in Acanthaceae, there is no mention and no place for them under Scrophulariaceae.

The miscellaneous information which has been retained is strongly flavoured with a European outlook: the statement in the preface that "Willis's reference to British species have been omitted" appears to be one of intention rather than execution. Notes on pollination especially (under *Erica* and *Salvia* for instance) refer not to the genus as a whole, but to one or two European species. This would be justifiable if they were the only species for which data were available, but the position should be made clear. The account of pollination in Compositae is misleadingly simple, for no mention is made of the very wide occurrence of self-incompatibility in this family. If some of the biological information is out of date, this applies even more to the economic. Willis himself clearly failed to keep this revised, and under *Elaeis* we still read word for word as from the first edition of 1897: "*E. guineensis* Jacq. (oil-palm), trop. Afr. from whose fr. the palm-oil used for railway axles, etc., is obtained by boiling". This, for a crop now second only to the coco-nut in vegetable oil production, reads as a masterpiece of non-information.

Thus there is a good deal of minor criticism that can be levelled at this Dictionary but nevertheless its two major components, the index of generic names and the family descriptions, are a very considerable achievement. Nonetheless "Willis" as we once knew it still awaits a modern version.

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Printed in Scotland for HER MAJESTY'S STATIONERY OFFICE
by Hay Nisbet & Co., Ltd., Glasgow Wt. 72568 K4