

Book reviews

Agnes Chase's First Book of Grasses (4th Edn), by L. G. CLARK & R. W. POHL. xxii + 127 pp. Washington: Smithsonian Institution Press (1996). \$16.96 (paperback). ISBN 1 56098 656 5.

When a famous book is updated by later authors, at what point does it become a different book deserving a new title? Clark & Pohl have clearly sought to ensure that the book is recognisably what Agnes Chase *might* have produced in a contemporary setting. In so doing they have both inherited problems and created new ones. There is no harm in that, and indeed the process, for an interested onlooker, is instructive.

Both in form and function, grass spikelets are exquisite. They are also small. The problem for a teacher, therefore, is how to guide students through these little packets of evolution. Although Chase did not neglect grass vegetative morphology, her book was almost confined to the spikelet. Moreover, she chose to group unrelated grasses together under 'pedicelled spikelets', 'sessile spikelets' and so on with various subdivisions. One result was that Chase's taxonomic summary, now outdated, did not readily derive from how she dealt with various spikelet types. It serves to underline the point that in grass taxonomy, while the spikelet is important, it is not the whole story.

Against this background what did Clark & Pohl decide to do? In 'lesson 3', for example, *Poa* together with other pooids is put alongside *Phragmites* (arundinoid) and *Distichlis* (chloridoid). By being this faithful to the original, the problem of linking with modern taxonomy again is not particularly straightforward. (The counter-argument may be that having looked at similar, but unrelated, spikelets together one could more readily follow the reasoning whereby apparently similar grasses end up in different pigeon-holes.) Perhaps the matter is of less consequence if the only objective was that students should be able to use a Flora.

Chase's concentration upon the spikelet creates a further problem. To what extent should such present-day considerations as the C₃ and various C₄ photosynthetic variants, or the peculiar details of grass self-incompatibility, find a place? Perhaps wisely in a 'first' book of grasses, the authors desisted. Given their background, it would have been astonishing if bamboos had not found a place and their

contribution here is a great improvement on Chase's earlier rather perfunctory treatment of this group.

The book will do two things well. It will assist students but, additionally, it will prompt other agrostologists to ask themselves what different choices they would have made in revising a well known text. Out of affection or respect, these authors reworked Chase's original format when perhaps the time had come to begin afresh, given how much perspectives have developed in modern agrostology. It is, though, open to argument either way and certainly they have produced a very worthwhile volume.

It was interesting to have a short biography of Agnes Chase but a little disappointing that page numbers given in the 'Contents' were greater by six than those upon which particular chapters actually began.

G. P. CHAPMAN

The Biology of Grasses, by G. P. CHAPMAN. 288 pp. Wallingford: CAB International (1996). £45.00 or \$82.50 (hardback). ISBN 0 85199 111 4.

The philosophy behind this book is given at the beginning of Chapter 11 – '*One view of grasses is that they are only or chiefly interesting because they provide our cereals and our principal forages. From such a standpoint almost all other grasses could appear marginal and inconsequential. An alternative view, and that of this book, is of cereals and forages best seen within a wider context as some rather than the members of the Poaceae.*'

The author is a well established devotee of grasses and grasslands and has edited several books on the subject. In this book he attempts to bring together some of the themes which have emerged from previous volumes. A very wide range of topics is covered, including the morphology, taxonomy, palaeontology, physiology (particularly photosynthesis), ecology, genetics and domestication of grasses. Every effort is made to emphasise diversity rather than uniformity and reference is made to species which, so far, have received little attention from the scientific community. Many chapters refer to the bamboos as recurring examples of eccentricity among the Poaceae, which paves the way for the author's next literary task as editor of a book entitled *The Bamboos*. With regard to domesticated grasses, the final chapter explores, in

some depth, the history and eccentricities of maize. Because of its breadth, the book tends to whet the appetite for knowledge of grasses without satisfying it. However it provides a good introductory read for those wishing to acquaint themselves with a group of plants which play a vital role in the well-being of our planet. For those who already work with grasses, but have become highly specialized with regard to species and/or discipline, it provides a refreshingly broader outlook.

The book is well written and generally provides a fairly undemanding read with a good scattering of amusing anecdotes. A useful collection of fairly recent references and an informative little glossary are included at the end of the book. It is illustrated throughout with a mixture of black and white photographs and line drawings which seem to give the volume a rather evocative appeal. At a time when grass genetics seems to be emphasising uniformity at a molecular level through syntenic relationships, the book provides a useful reminder of the diversity of phenotypes which exist among these important plants.

MERVYN HUMPHREYS

Recent Advances in Animal Nutrition – 1996, eds P. C. GARNSWORTHY, W. HARESIGN & J. WISEMAN. ix + 294 pp. Nottingham: Nottingham University Press (1996). £55.00 (hardback). ISBN 1 897676 03 4.

Every January since 1967, the University of Nottingham has held a Nutrition Conference for Feed Manufacturers. In this volume are published the twelve papers presented at the 30th Conference. According to the Preface, the aims of the Conference are now, as they were then, 'to provide information ... that could be readily applied to a commercial situation'.

The book is divided into five sections, covering legislation and health, poultry, ruminant and pig nutrition and laboratory analysis.

Increasing public concern about the quality of food is reflected in a rapid expansion in legislation, especially in regard to pathogens. A review of new legislation affecting the animal feed industry has become a regular feature of the Conferences. Two chapters deal with antibiotics, one reviewing the benefits, the other the public health problems arising from their use.

Of the two papers on poultry nutrition, one deals with amino acids, the other with phosphorus. Current interest in both is prompted, at least in part, by concerns about environmental pollution.

Productivity of dairy cows is the common theme of the three chapters on ruminant nutrition, which arguably cover their topics most thoroughly. The

first, the longest in the book, examines the extent to which the analysis of milk can serve as an indicator of the health and productivity of dairy cows. The second deals with milk production on grass, asking whether cows selected for use in high input systems perform effectively in low input grass-based systems. The third reflects the rapid increase in the use of maize silage and discusses its use and appropriate supplementation in dairy cow feeding.

The section on pig nutrition includes chapters on three subjects that are undoubtedly topical and which for that reason have been reviewed elsewhere in the recent past. The first short paper describes experiments showing how activation of the immune system by environmental antigens is associated with reduced rate and efficiency of pig growth. The second reviews dietary energy systems and the third energy–amino acid interactions in the nutrition of modern pig genotypes.

The section on laboratory methods includes just one paper, focusing on the value of near infra-red spectroscopy for routine monitoring of the quality of both ingredients and finished feeds.

At the end of the book there is a cumulative index for all thirty volumes, together with a subject index.

The Nottingham Nutrition Conference is now well known as a source of up-to-date reviews of subjects that are of current interest, either because of scientific advances or because of political or economic imperatives. This volume maintains the tradition. It will be a useful source of information to those who did not attend the conference as well as those who did.

MALCOLM FULLER

Exploring the Role of Diversity in Sustainable Agriculture, eds R. OLSON, C. FRANCIS & S. KAFFKA. xiii + 249 pp. Madison: American Society of Agronomy Inc., Crop Science Society of America Inc., Soil Science Society of America Inc. (1995). \$26.40. ISBN 0 89118 128 8.

The diversity in the title of this book relates to naturally occurring species, crops, field sizes, soil types, landscapes and human beings. There is in fact too much diversity and too little focus. The context is exclusively American and is politically correct – the latter to the extent of discussing 'ecofeminism', not a concept likely to excite scientists outside the USA. It is surprising that none of the authors refer at all to the outside world, for example the otherwise interesting chapter which discusses intercropping fails to note the significance of this practice in Africa, where it is widespread.

The book is divided into nine chapters. The exploratory nature of the proceedings results in useful

consideration of frameworks and classifications in some of them. The spatial elements of landscapes and soils would undoubtedly appeal to many geographers. However, agricultural scientists might well be dismayed by the apparent acceptance of the premise that diversity is positively related to sustainability without the production of much more evidence. The formulation of hypotheses and how they might be tested is sadly neglected. As an economist I note that the authors think that crop diversification is a good thing, but the at least 30-year-old knowledge of optimum crop combination seems to have been forgotten. Generally the book abounds with references, which may be its main value to readers. But one can have too much of a good thing, some chapters are so liberally laced with references in the text as to be almost unreadable – it is surely unnecessary to support a statement such as ‘biodiversity is an important issue’ with two references! I am interested in biodiversity and sustainable agriculture, but found this book tedious and very disappointing. Other readers may find it worth dipping into and useful for specific references – after all, we are diverse human beings.

BRIAN E. HILL

Cultivated Vegetables of the World. Latin Binomial, Common Name in 15 Languages, Edible Part, and Method of Preparation, by S. J. KAYS & J. C. SILVA DIAS. 170 pp. Athens, Georgia: Exon Press (1996). \$29.95 (paperback). ISBN 1 888186 51 8.

The authors, respectively from the University of Georgia and the Technical University of Lisbon, have recognised that confusion exists as to the identity of

some crops as they reach, perhaps for the first time, the international rather than the local market. As they note, ‘when the large number of vegetable crops is combined with the extremely large number of languages worldwide, the number of common names is in the tens of thousands.’

The authors have earlier published (Kays & Silva Dias, *Economic Botany* 49, 115–152, 1995) a list of the common names in 15 languages of the commercially grown vegetable crops, but this did not allow cross-reference between common name, language and correct botanical name. The book now allows this to happen. It is divided into five Sections (Tables). The first provides the Latin name (Plant Division and Family), common names in the alternative languages, the edible part and its method of preparation. The second provides an alphabetical list of names e.g. aachi chohku, which is Japanese, its code number for the species (27.14) which on reference to Table 1 reveals it to be globe artichoke (*Cynara scolymus* L.), a member of the Asteraceae (Compositae). Table 3 lists the common names under their language and aachi chohku heads the Japanese list. Table 4 gives English names under a classification of plant part eaten (the immature flower bud). Table 5 lists those vegetables which are cooked, eaten raw or preserved. The code number is provided in all the latter tables. The fifteen languages are English, Arabic, Mandarin Chinese, Danish, Dutch, French, German, Hindi, Italian, Japanese, Malay, Portuguese, Russian, Spanish and Tagalog.

This is a very carefully prepared, well-presented and useful reference book for scientists and a wide range of workers concerned with food production and processing. It is thoroughly recommended.

W. J. WHITTINGTON