

electromagnetic fields with dense plasmas, altogether too ambitious a title in view of its very restricted compass. The final two chapters on the anomalous absorption of electromagnetic radiation and concomitant plasma heating are, by contrast, full and detailed and make up almost half the text. The book concludes with an extensive bibliography and a less than comprehensive index.

The work is given a distinctive flavour by its emphasis not only on the experimental aspects of the interaction of radiation with plasmas but on details of the experimental procedures themselves. While there are undeniably circumstances in which this amount of detail is valuable — even essential — one is left with a clear impression that on many occasions the descriptions provided serve no purpose and could have been dispensed with to advantage. Worse, however, is that they sometimes positively get in the way of an otherwise informative discussion. Examples of such over-indulgence are to be found in virtually every section of Part II. Some read like paraphrases of the original literature; others are probably relics from the lectures on which the book is based and would have been best left out. Had Professor Gekker been less prodigal in his attention to descriptive detail he might have felt able to devote correspondingly more space to discussing the implications of the various experiments for nonlinear plasma physics.

Another shortcoming, perhaps not unrelated to the book's origins in a course of lectures, is some tendency to be comprehensive rather than critical. While it is informative to have one experiment compared and contrasted with another, there is perhaps less merit in setting out a catalogue of work done without critical commentary. Another aspect of the same problem manifests itself in the lists of authors which are interspersed in the text, extending in one instance to 12 lines of unnecessary interruption. More substantial than these pin-pricks is the considerable imbalance in the treatment of the subject matter. For example Chapter 9 forms almost one-third of the text, with one section alone (Section 9.5 on microwave absorption experiments) extending to 35 pages. This could have been subdivided to advantage.

These various criticisms should not be taken to imply that the book is without merit. It is a veritable mine of information — albeit one in which much of the ore is deep level — and will repay careful reading. The readership is likely to consist in large part of scientists active in this area of plasma physics. Unlike the original Russian version this translation is less likely to be used as a text in postgraduate courses though it could, and should, find a place on reading lists. □

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Abscission since Newton

Roy Sexton

Abscission. By Fredrick T. Addicott with illustrations by Alice B. Addicott. Pp.369. ISBN 0-520-04288-3. (University of California Press: 1982.) £29.75, \$51.35.

LIKE MOST abscission physiologists I am occasionally confronted by some hearty soul who tells me that we would probably know more about abscission if only Newton had confined his thoughts to the processes that occurred just prior to the fall of the apple. The implication that there are major gaps in our knowledge of abscission is well founded but unfortunately these problems have failed to attract the attention they merit from botanists.

In the preface to *Abscission*, F.T. Addicott makes plain his aim to interest plant scientists from a wide range of backgrounds. Unlike most previous reviewers, he has not confined his attention to the physiology and agronomic importance of the process but has expanded the scope to include the lower plants and topics such as the genetics and ecology of abscission. During his 40-year association with the subject the author has accumulated 2,500 papers concerned with abscission and as a result he is able to write with unrivalled authority on most aspects of the process. The obvious zeal with which this information has been gathered is impressive, though great care has been taken not to overwhelm the reader and the information is presented in a concise yet readable form. There is little doubt that the massive effort involved in mastering this material has been worthwhile and will ensure that this volume will become the standard reference work for many years to come.

The first section of the book describes the various structures that can be shed from the plant, ranging in size from the smallest trichomes to the complete aerial portion of tumble weeds. Detailed accounts are given of the anatomy, cell biology and biochemistry of the weakening process. The section on the hormonal control of abscission is briefer than I had anticipated, and although the literature coverage is adequate it is not as comprehensive as that in other chapters. This section contains a spirited defence of the view that abscisic acid is a major controlling factor in abscission, which is perhaps what one would expect from a member of the team involved in the original characterization of the substance.

Also included are a chapter describing the increasing agronomic importance of manipulating abscission and another concerned with the ecological significance of different abscission strategies. The sections on the genetics and evolution of abscission are especially noteworthy because they represent the first serious attempts to review these subjects.

The front cover of the book carries not only the author's name but also that of his wife, Alice B. Addicott, who was responsible for the fine botanical drawings. This pleasant feature draws attention to the unrecognized yet important role that illustrators play in improving the clarity of scientific texts. However I appreciate mention of her name for another reason. I was once asked by a student why the recognized abbreviation for abscisic acid was ABA (see *Science* 159, 1493; 1968) and not AbA which seemed more logical. Is this perhaps just a coincidence; or is there another explanation? □

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Variety in singular behaviour

N.B. Davies

The Shelduck: A Study in Behavioural Ecology. By I.J. Patterson. Pp.276. ISBN 0-521-24646-6. (Cambridge University Press: 1982.) £27.50.

THE CURRENT trend for research in behavioural ecology is first to think of an interesting idea and then of a species that will be good for testing it. Detailed studies of all the various aspects of a single species have become less fashionable and are sometimes disparagingly labelled "the aardvark approach"; if no one has yet studied aardvarks then we use this as the main excuse for doing research on them. This view is unfortunate because we have only to think of Lack's robins, Nice's sparrows and Tinbergen's gulls to remind us that some of the main ideas in behaviour and ecology have been derived from long-term studies of particular species.

Shelducks have been studied on the River Ythan in Scotland for the past 20 years by Ian Patterson and students from Aberdeen University, forming the subject of six theses and over 20 published papers. This book, which summarizes the work and relates it to other studies, is a good example both of how general theories can best be tested with long-term data and also of how a detailed study of one species can give rise to new ideas of wider interest. The book is organized around the shelduck's annual cycle, beginning with the extraordinary autumn migration to the mudflats of north-west Europe where, safe from predators, thousands of birds congregate to moult, dropping all their flight feathers