SPIDERS OF BRITAIN

British Spiders
By G. H. Locket and Dr. A. F. Millidge. Vol. 1. (Ray Society Vol. 135 for the Year 1949.) Pp. ix+310. (London : Ray Society, c/o British Museum (Natural History), 1951.) 27s. 6d.

SEVENTY years is a long time to wait for a book, and yet Pickard-Cambridge's "Spiders of Dorset", published in 1881, was, until now, the latest attempt to describe all the spiders of Britain. The absence of a recent book of this kind has been felt more and more seriously for more than half a century : now at last help is forthcoming in this the first of two volumes from the Ray Society. It is a work on which the authors, Mr. G. H. Locket and Dr. A. F. Millidge, who speak with the voice of experience and authority, can be unreservedly congratulated.

The opening chapter, a contribution from Dr. W. S. Bristowe, is a historical account of the study of British native species, in which Bristowe appreciatively surveys the work of his predecessors. He happily takes notice of their individual qualities and makes a human story of what might have been a dull record of specialized zoology. Wisely he emphasizes again the fact that nearly all our knowledge of British spiders is due to the devotion of men otherwise engaged on their own professional duties, while the British Museum (Natural History), for more than forty years, has sacrificed spiders to mites.

Mr. Locket and Dr. Millidge have tackled their systematic and descriptive problem in an engagingly workman-like manner. After the customary paragraphs on collecting and preserving spiders, and an account of their external features which is, perhaps, rather longer than necessary, they print a dichotomic key to twenty-four British families, with adequate illustrations and the addition of fifteen very helpful 'notes'. The families follow in turn, each with a summary of its characteristics, a key to its genera, and descriptions of its species.

Diagnostic work of this kind can never produce dramatic writing : a reviewer can but look for the underlying principles and try to judge the help afforded to readers who, less familiar with the animals themselves, are trying to name spiders from these pages. In so doing I find, first, descriptions which emphasize the essentials and are not overburdened with repetition and detail. Blackwall's description in 1861 of the common species *Xysticus cristatus* occupied a thousand words ; Locket and Millidge are more practically helpful in two hundred. They tell their readers exactly what to look for in each species, and give accurate drawings of genitalia and other features that they may expect to see. British araneology has never before had anything like this ; within its own sphere it is an outstanding contribution to taxonomy.

Because of this it is unfortunate that, while most of the admirable drawings have been clearly reproduced, some have not reached the high standard that we have become accustomed to expect in Ray Society volumes. Fig. 21 (*Cinifio similis*) is an example of this : the fault lies not with the artist but in the process of reproduction, and is particularly regrettable.

The notes on the distribution of each species are ecological in character, not geographical. Here again, it is on the practically helpful information that the emphasis has fallen. This volume, which covers 205 species in seventeen families, has not reached the

Linyphiidæ, the most 'difficult' group, but it includes several of the genera in which separation of the species is sufficiently puzzling. One turns to these genera—*Lycosa* and *Clubiona* are examples—with interest, and finds the same practical guidance, the genera being conveniently split into groups and the contrasting characteristics of closely related species displayed in tabular form.

As I have said, this book was badly wanted and has not disappointed me. I look forward to its successor with keen anticipation of even greater satisfaction. **T. H. SAVORY**

DYNAMICS FOR MATHEMATICIANS

Advanced Dynamics
By E. Howard Smart. Vol. 1 : Dynamics of a Particle. Pp. xi+420. Vol. 2 : Dynamics of a Solid Body. Pp. xi+420. (London : Macmillan and Co., Ltd.; 1951.) 40s. net each Vol.

IN these days a book on dynamics rarely describes recent discoveries ; it is normally a presentation of long-established facts. It is to be classified according to the class of student for whom it is written, and the clarity and interest of the presentation. The recent work by the late E. H. Smart, entitled "Advanced Dynamics", is for mathematical students (though not wholly for honours mathematicians) and embodies the substance of lectures given to students preparing for London degree examinations. It begins at first principles ; but it is not a beginners' book, since even in the first chapters more advanced ideas appear side by side with the elementary ones. The first volume covers such parts of particle dynamics as can be discussed without using generalized co-ordinates. The second deals with rigid dynamics in two and three dimensions, including a full treatment of Lagrange's and Hamilton's equations, but omitting other more advanced analytical topics. Within these limits, the whole forms a full and comprehensive treatise.

It is the book of a teacher. No pains are spared to enable the student to apply dynamical principles. Dozens of examples are worked in the text ; and the collections of examples for the student are long and numerous. On the other hand. the discussion of physical principles occasionally leaves something to be desired ; subjects of more formal interest—for example, the motion of chains, impulsive motion, and initial accelerations and curvature—are discussed more fully ; and the emphasis of the treatment sometimes suggests that the need of getting students through examinations had an undue influence.

The presentation shows the marks of a lecturer ; it is bright and interesting, discursive, a little unsystematic, and not infrequently repetitive. It shows that disregard for pure mathematical niceties (especially as regards differentials and limits) which often characterizes lecturers in applied mathematics ; it is noteworthy, however, that lax statements are not permitted in proofs on which examination questions can be set. Vector ideas are frequently used, but in an unsystematic manner, the basic results being proved over again for new vectors. I should have preferred to have seen more discussion of the use of complex numbers in oscillatory problems, and of those parts of dynamics used in quantum mechanics. An interesting feature is the historical notes given in the text and at the end of some of the chapters.