

Webster has obviously had to be selective as to what fungi he included. In the preface he states that he is prepared to accept a criticism that no attempt has been made to deal with the Fungi Imperfecti as a group. Nobody should dare criticize him on that score. It is time that we all dealt with them, as he has attempted to do with some conidial states of the Ascomycotina. It is here that I would have welcomed a more personal authoritative touch with some further illustrations of the variety of conidial states possessed by such genera as *Leptosphaeria* and *Pleospora*, and even the briefest mention of the aquatic Hyphomycetes perhaps tenuously linked to his account of *Nectria*.

I would similarly have welcomed a lengthy introductory chapter covering more general aspects of comparative fungal biology for the benefit of the first year student and perhaps a fuller treatment of other groups such as the Blastocladales and Monoblepharidales. In the former, for example, only *Allomyces* and *Blastocladiella* are considered. One must admit that these two genera are what Professor Ralph Emerson would describe as ideal "performing fungi" for classwork but few of us have ever isolated "wild" *Allomyces* or *Blastocladiella* whereas representatives of the type genus *Blastocladia* are as easy to obtain as *Saprolegnia*, if ponds or streams are "baited" with fruit.

The text is lucid and concise. The only point which the student might find confusing is the author's treatment of variety, *forma specialis* and physiological race in the Erysiphales and Uredinales. In *Erysiphe graminis* (p. 187) he equates physiological races with *formae speciales* and in *Puccinia graminis* (p. 373) uses the category of variety for its six pathogenic entities and physiological races for the various strains within each. At this level it would be preferable to consider the pathogenic entities on particular hosts as *formae speciales* (for example, *E. graminis* f. sp. *tritici* and *P. graminis* f. sp. *tritici*, and so on), each of which is divisible into a number of physiological races. The student may also be taken aback after reading that *Penicillium cyclopium* is "one of the Fungi Imperfecti not an Ascomycete" (p. 157) to find that the genus *Penicillium* is later (p. 205) considered in the Plectomycetes. It is a great pity that so many minor errors escaped detection in the final preparatory stages. The majority of these are misspellings and, in the main, these are associated with the figures. I suspect that the method of offset printing used has not always done justice, in terms of definition, to some of Webster's photographs.

In addition to being the most valuable introduction to the fungi, the text is also a reference work, as the bibliography of almost 1,000 references would suggest. It will undoubtedly replace the standard

degree level textbooks such as Alexopoulos's *Introductory Mycology* and, in detailing the amazing diversity of fungi, it will in many ways complement the more general approach adopted by Professor Burnett in his *Fundamentals of Mycology*. To have two textbooks of such quality as these within two years is an immense boost to British mycology.

H. J. HUDSON

¹ Ainsworth, G. C., *Trans. Br. mycol. Soc.*, 36, 270 (1953).

Rigor and Flexibility

Matter and Motion. By N. Feather. Pp. 195. (Penguin: Harmondsworth, Middlesex, 1970.) 15s.

Free-Electron Physics. By P. S. Farago. Pp. 269. (Penguin: Harmondsworth, Middlesex, 1970.) 30s.

THESE are two titles from a projected series of over fifty volumes written especially for undergraduate courses in physical sciences: about half of these books will be designed to provide a course of increasing flexibility in successive years.

Professor Feather's book is among those offered for first year use. Few would argue that this year is not, in many ways, the most important for degree courses in physical sciences, but unless the foundation is sound the superstructure may become insecure and distorted. Some readers will certainly regard *Matter and Motion* as more suitable for the science historian than for the practical scientist, for almost the whole of it is long established, and the text could have been reduced to a fraction of what there is by avoiding difficulties resolved for centuries, and the logic of their resolution.

Here my sympathies lie, without qualification, with Professor Feather. It is well known that physical science has, in recent years, lost some of its compelling interest for the young student, and it is not difficult to believe that an important factor in this disillusionment has been the unqualified and uncritical certainty which has marked much of what is to be mastered in the early years. By playing down what the valuable text by Cox fifty years ago described as the "Winning of the Principles", this approach has devalued its subject. Professor Feather's book not only provides a more wholesome approach but, given that his readers have not lost the art of following continuous prose, should lead both to a clearer understanding and to the pleasure of well developed argument. Many of the difficulties that students of physics encounter during a university course arise from failures clearly to understand the bases of the subject; there is no short cut to this level of understanding.

In Professor Farago's book we have clearly moved forward to the third year. *Free-Electron Physics* is very much a

specialized option. In scope and treatment the book is eminently suitable for use in a final year Honours stream today. Indeed, it is a subject where rigour at a suitable level is fairly close to the practical areas within which the topic is important.

A final point is raised, in particular by *Matter and Motion*. As a text for the determined and literate student, enough has already been written. But what of his teacher? No problem arises when teaching is mainly tutorial, where the students' reading forms the matter for discussion, but the book raises much more difficult questions if the traditional lecture is an important feature of teaching. Professor Feather can hardly be better in paraphrase, and one must doubt the value of running a second treatment, probably different in spirit and timing, in parallel with the systematic mastery of his book.

J. G. WILSON

Space Rocketry

Nuclear Engineering for Satellites and Rockets. By Horst Löb. (Thiemig-Taschenbücher, Band 36.) Pp. xvi + 399. (Verlag Karl Thiemig KG: München, 1970.) 24.80 DM.

It is difficult to know just what market this book is intended for. Because of the side by side presentation in German and English, the customer is effectively getting a mere 200 page pocket book (7 inches × 4.5 inches) at a very high price. Technically, the volume is excellently produced, and it contains many high quality illustrations. But having gone so far, the overall quality is sadly reduced by the poor standard of much of the English, which in places reads so clearly as a literal word for word translation of the German that the effect is one of caricature—"Thin-film-cells of galliumarsenide and cadmiumsulphide are under development, with which areas up to some 1,000 m² could be covered after projects of Boeing" is a fairly typical example, and there are others which it would be kindest to ignore here.

Having deciphered the cryptic English (or in places resorted to my own translation of the original German) I have found a comprehensive survey of the field and its future possibilities. West Germany lies second only to the US in developing "unconventional" propulsion systems for spaceflight, so that the high quality of the original work described here is understandable. Still, engineers working on nuclear and electrical propulsion systems for rockets will already be acquainted with this work, while any layman able to overcome the linguistic barrier will almost certainly be out of his depth technically.

But science journalists may find this book of value, and so indirectly this work may benefit the general state of public knowledge on advanced space transportation systems.

JOHN GRIBBIN