where A is the cross-sectional area of the nozzle; v is the corresponding velocity of the gases in the nozzle; a is the local velocity of sound, from which the convergent-divergent nozzle 'emerges'. Its introduction might have saved the authors twenty pages of print and given the reader a true appreciation of the Laval nozzle.

So the text goes on for a total of 811 pages with much that is of little positive value. Very few of the basic conclusions are derived, and on many occasions important statements are made for which one would rightly expect some proof. But, no. Surely one is justified in expecting a short proof that if n is the index of the burning pressure, governing the burning-rate of solid propellents, equilibrium can be established only if n is less than unity. Incidentally, on p. 240 one reads that if n is greater than unity an explosion will occur. In fact, if n is equal to unity an explosion will occur—a slight but most important difference. Erosive burning is referred to on pp. 201 and 202 and again on pp. 259 and 260, and the two references show little connexion with each other. Why could not the authors deal with it once, and once only?

Many examples of wrong statements may be quoted and one or two will be sufficient to indicate the worries created in my mind. On p. 317 we find "The nozzle weight is found to be approximately proportional to total impulse". This is just not true, and there is no reason why it should be. Yet again, in section 7.2.5, "Geometry of the Combustion Chamber", one reads that there are 'trends' in combustion chamber shape and infers that they are subjected to the same whims of fashion as ladies' waists and hem-lines. If this were true, why did the authors devote 100 pages and more in Chapter 7 to the problems of liquid-propellant rocket combustion chambers and another 60 pages in chapter 10 to combustion instability? Yet, throughout, the authors make implicit assumptions on chamber shape. On p. 468 we read that "the Mach number in the chamber is low, being of the order of 0.1, we can neglect its influence". Thus, whether the authors realized it or not, they are implying that the ratio:

$$\frac{\text{combustion chamber cross-sectional area}}{\text{nozzle throat area}}$$

is greater than 5:1. To say the least, this is at variance with earlier remarks on 'trends'.

Occasionally we get glimpses of the true position in rocket research and development as in paragraph 10.4 on p. 707. "A change in the scale can completely alter the stability conditions of the power plant, and it is difficult to predict the operating stability of a large rocket on the basis of experimental results obtained on small-scale models." I certainly accept this as true and regard it as an incentive to do some basic work to rectify the position. The book takes 50 pages to say the same thing.

To anyone diligent enough to pursue some of the numerous references given at the end of each chapter there is a more enlightened story awaiting them. It is noteworthy that most of these references refer to American documents, and the authors can scarcely be blamed for the paucity of references to British work.

After 'scanning' this book, I am a sadder, but no wiser, man.

J. E. P. DUNNING

NEUTRON PHYSICS

Introduction to Neutron Physics

By L. F. Curtiss. (Van Nostrand Nuclear Science Series.) Pp. xi+380. (Princeton, N.J.: D. Van Nostrand Company, Inc.; London: D. Van Nostrand Company, Ltd., 1959.) 73s.

THERE is now an extensive literature on neutron interactions and on the techniques used in their study. A student starting work in this field is frequently confused by the proliferation of original papers, and needs a text-book which will give him a grounding in this subject of neutron physics. It is the aim of Dr. Curtiss's book to do just this; and on the whole it succeeds.

The emphasis of the book is on experimentally demonstrated facts and widely used techniques. The level of presentation is fairly elementary, but the book is easy to read and the style is clear and flowing. A student should have no difficulty in mastering the text and doing the problems which are found at the ends of the chapters. There is a lot of simple details which will help to give the student a 'feel' for this subject, but there is little critical discussion which would lead the student into the more complex parts of neutron physics.

In writing a book of this type it is often difficult to keep it up to date. This review will appear some eighteen months after the author wrote his preface, but from an examination of the text and the references it seems that the literature is covered up to 1956 only, so that the book is effectively four years old already. Of course all authors and publishers are familiar with this problem, and to counteract it some type of general bibliography covering the last few years might well have been included during the final preparation. In spite of this defect, this book covers all the groundwork of its subject.

Although most branches of neutron physics receive attention, there are occasional lapses. For example, the linear electron accelerator is not mentioned in the discussion of pulsed neutron sources; and inelastic scattering of thermal neutrons is entirely omitted. In discussing thermal neutron interactions Dr. Curtiss uses the term 'diffuse' cross-section in place of the now almost universally used term 'incoherent' cross-section, which may confuse some of his readers.

Nevertheless this book will command a wide audience and will be found both necessary and useful in many laboratories. The presentation is good, the diagrams are clear and there are very few misprints. The author and the publishers are to be congratulated on the result of their labours.

P. A. EGELSTAFF

INSECT PHOTOGRAPHY

Les Plus Beaux Insectes

Textes de A. Villiers. (Collection "Nature et Beauté".) Pp. 96 (154 illustrations). (Paris: Larousse, 1958.) n.p.

THIS quarto volume is one of the Larousse series "Nature et Beauté", and is primarily an atlas of more than one hundred and fifty photographs of insects. These are from a variety of sources, some showing insects in natural, or quasi-natural settings, others from pinned and set specimens, formally arranged into a plate. Twenty-four full-page plates are in colour, printed on an art paper with a lustre