describe chemical syntheses of porphyrins and there would have been little point in trying to cover this topic here. A considerable amount of information, however, has been compressed into these two chapters. Spectral properties, co-ordination with metals and other ligands, redox equilibria, and acid-base properties are all included. R. Hill has contributed an eminently readable account of the chlorophyll field; the empirical nomenclature is carefully explained and, as expected, the spectral and photochemical properties of chlorophyll feature prominently. Section *A* concludes with a very brief account of bile pigments by C. H. Gray; chemical facts are kept to a minimum, but there are some interesting sidelights on the relation between bile pigments and jaundice. Part *B* opens with an extensive account of isoprenoid compounds by A. J. Haagen-Smit and C. C. Nimmo. Starting from hemiterpenoids, the authors progress by stages to polyterpenoids such as rubber. Inescapably, owing to the biosynthetic versatility of nature and the nomenclatural inelegances of terpene chemists, the journey includes a vast number of names and formulæ. The authors have made a commendable effort to simplify the reader's task by stressing structural and stereochemical relationships. It should be mentioned that, on p. 125, α-pinene is incorrectly stated to have a fused four- and five-membered ring system. The succeeding chapter on vitamin A by J. G. Baxter, although it includes a lot of material, has an annoying feature. The text cites two types of references; one gives author's name and date but no journal reference, while the other gives full literature details. For the amount of space involved, all the references could have been given in full. The next two chapters, by R. S. Harris, deal with vitamins E and K. They are so short as to be almost useless except as literature sources. Surprisingly, quinones including ubiquinones qualify for separate treatment by R. A. Morton. It would have been more satisfactory if the chapters on vitamin K and quinones had been combined. Section *C* consists of one chapter by T. A. Geissman on phenolic plant constituents. This deals with the broad range of flavonoid compounds, tannins, and compounds based on a C_6—C_3 phenylpropane unit. Classification reflects biosynthesis so far as is possible, and this serves as a unifying feature of the chapter. It is unfortunate that naturally occurring polyacetylenes were not included in this volume.

Volume 10 is entirely devoted to steroidal compounds and opens with a chapter by D. Kritchevsky on sterols. After brief introductory sections on the structure and conformation of steroids in general, there is a very condensed account of cholesterol and related compounds. The biochemist may be surprised to find vitamin D dismissed *en passant* in less than a page. On p. 16, agnosterol is incorrectly stated to be more highly saturated than lanosterol. The essential features and possible biochemical functions of bile salts are described in a short chapter by G. A. D. Haslewood. In the remaining four chapters, steroids receive more liberal treatment. G. I. Fujimoto and R. W. Ledeen set forth the chief aspects of the chemistry of androgens and mention important synthetic analogues with differing relative androgenic and anabolic activities. The chemistry of œstrogens is described by P. A. Katzmann and W. H. Elliott, and reactions of the four rings are treated separately at some length. Methods of separation, isolation and determination are also mentioned. The longest chapter, by H. J. Ringold and A. Bowers, is devoted to adrenal hormones. A discussion of the reactions of the side-chain and functional groups of cortisone and hydrocortisone leads naturally to an account of the immense effort, which has been directed to the synthesis of these hormones and many structural analogues. Although desoxycorticosterone and aldosterone receive separate mention, the authors rightly stress that the rigid classification of corticosteroids into glucocorticoids and mineralocorticoids is unrealistic; indeed, the relationship between structure and biological activity is repeatedly emphasized. Finally, progestational hormones are described by J. A. Zderic, and the treatment resembles that in the previous chapter. A great deal of information relating to biological activity is effectively summarized in tables.

Reading these two volumes, I was surprised at the variation in the ratio of the number of literature references to number of pages of text. This ranged from 0·6 to 8·8, and the highest ratios occurred in the shortest chapters. Clearly, a dull uniformity would be deplorable, but a high ratio is not suitable for a text-book, since the reader has to find most of his information elsewhere, while a low ratio could result from either verbosity or the regurgitation of reviews already published. D. T. Elmore

WORKED EXAMPLES IN ELECTRICAL ENGINEERING

Examples in Advanced Electrical Engineering

By Prof. J. F. W. Bell. (Electrical Engineering Series.) Pp. 199. (London: The English Universities Press, Ltd., 1962.) 18*s*. net.

BOOKS containing solutions to examination questions are always popular with students, who hope, with their aid, to make themselves proficient at answering questions within the strict time limits of an examination. The majority of such books confine themselves to the solution of numerical problems, but *Examples in Advanced Electrical Engineering* is one of the select few in which a model answer is given to the whole question as set in the examination paper. Most of the questions are taken from recent Part III papers of the University of London B.Sc.(Eng.) examination. Prof. J. F. W. Bell is not afraid to include critical comment where, in his view, the question was too easy, too long or ambiguous in its wording.

Examiners are, however, not in an easy position in setting papers. Excellent books, like the present one, must not be allowed to provide the student with a short cut to passing examinations without a proper understanding of the subject-matter behind the questions. In their search for new questions which can be answered adequately in half an hour, some artificiality is at times unavoidable and a little ambiguity also is sometimes preferable to the use of more words, which the student has to interpret before he can start answering the question. The student has one big advantage over the author of a book of model answers, in that his limited knowledge usually eliminates most of the ambiguities from the answer he is able to give. In this respect, the brilliant student may be at some disadvantage compared with those of average calibre, but examiners have little difficulty in spotting brilliance. However, this book shows clearly the proper method of dealing with ambiguities when these are appreciated by the student. The student's interpretation of the question with respect to the ambiguity should be clearly stated in his answer.

It is evident from a study of the model answers that few of these could be given by the student within the time limits allowed. This is of small moment, since students are very expert at abbreviation. Perhaps a more valid criticism would be the lack of solutions by alternative methods.

Alternative solutions would not only be of assistance to those students who were more familiar with the alternative method, but by having two or more solutions side by side the student could see the relative merits of different techniques more easily and the educative value of the book would thereby be enhanced. The price of the book, very moderate at present, might also be enhanced by this additional material. The author may well have had this in mind. A. H. M. Arnold