REVIEWS

Progress in Crystal Physics, Vol. I. *Thermal, Elastic and Optical Properties.* By R. S. Krishnan. (Published by S. Viswanathan, "Acton Lodge", Madras-31), 1958. Pp. vi + 198. Price Rs. 20.

The aim of this series, according to the author, is to make available critical reviews of the "available data on the physical properties of non-metallic crystals in a form most useful to the workers in Crystal Physics". The Department of Physics of the Indian Institute of Science, Bangalore, has been interested in these problems for the past several years and has itself contributed a good amount of data and theoretical work. The author, who is the present Head of this Department, is therefore particularly well fitted to undertake this work of reviewing the publications in the field.

The first volume, under review, consists of seven chapters respectively on Thermal Expansion, Thermal Conductivity, Elastic Constants, Photoelastic Effect, Thermo-optic Behaviour, Faraday Effect and Dielectric Properties, each one prepared by one or more of the workers in the Department together with Prof. R. S. Krishnan. There is a short introduction of 8 pages (probably far too short), dealing with elements of crystallography, method of growing crystals, number of various constants in the different crystal classes, etc.

Each chapter contains a short review of the main developments in the subject, followed by an exhaustive summary of the available data. In the review part, an attempt is made to mention not only the various experimental techniques available but also the theoretical implications of the results obtained. Obviously it is not possible to do justice to all this in a space of 20 pages or less. As a consequence, it is not possible for a reader unacquainted with the field to get familiar with it from reading this book. On the other hand, practically every paper of significance is mentioned and so the book forms an excellent source of reference to the workers in the field. In the collection of data also, no effort has been spared to make it complete and so the tables at the end of each chapter provide an exhaustive list of the available data. The authors and the editor have to be complimented on the very thorough manner in which they have done this.

A few minor criticisms may be made. There are a few errors in the Tables, *e.g.*, ψ for potassium chlorate is available in the original paper, but not given in Table IV (p. 38); so also the probable errors are omitted for boric acid, although reported in the original paper (p. 41). It would have been better if the angle ψ were defined uniformly in the article, say, as that between OX_1 and a, measured positive towards c, and all the data given according to this convention in the Tables.

A more serious criticism is the complete omission of all references to Raman's theory of elasticity, except a vague statement that it assumes "stresses and strains of a character different from those in the classical theory of Cauchy". The "molecular" theory of wave propagation in crystals as developed by Raman and Viswanathan, and independently by Laval, and tested at least in one case by Le Corre, is not even mentioned in the body of the review. The chapters on the optical and magneto-optic properties are particularly well written.

All these do not detract from the value of the book, which provides for the first time a comprehensive and readily available source book of the literature on the subject. It is warmly recommended to all libraries interested in crystal physics.

G. N. RAMACHANDRAN.

Biophysical Chemistry. By John T. Edsall and Jeffries Wyman. Vol. I. (Academic Press, Inc.), 1958. Pp. 699. Price $ 14.00.

Biological systems defined in terms of chemical molecules are by and large dominated by proteins and we seem to have gained some understanding of the connection between certain life processes and the associated chemical changes. The subtler connections, however, seem to be at the present moment beyond our comprehension. In recent years biology has contacted physics and even mathematics, and today we find a new borderline subject rapidly developing under the title Biophysics.

The present volume has much to say regarding the physico-chemical aspects of chemical components making up a biological system, of which we find a variety, namely, acids and bases, polar molecules, electrolytes, etc. Chemical reactions supply the biological system, as

long as it is endowed with life, with vital energy necessary for its function. Rightly, therefore, in this volume, a good number of pages are devoted to thermodynamics and its application to chemical reactions. Starting from fundamental principle and definitions, the authors take the reader to the applied aspect, namely, chemical thermodynamics.

The subject is presented under eleven headings :

Biochemistry and Geochemistry ; Water and its biological significance ; Problems of protein structure ; Thermodynamics ; Electrostatics : Its application to polar molecules and ionic solutions ; Dielectric constants and their significance ; Conductivity of electrolytes ; Acid-base equilibria ; Polybasic acids, bases and ampholytes, including proteins ; Carbon dioxide and carbonic acid ; Some general aspects of molecular interactions. A list of references cited at the end of the chapters will be found to be of much value for those who are interested to go deeper into the subject. The volume which is claimed by the authors to have been born out of a course of lectures on pysical chemistry of biochemical systems has been written mainly with the biochemists in mind. But the average biochemist may experience difficulty in following some of the chapters for they are inevitably bound up with a mathematical treatment. The book will serve as an introductory guide for the enterprising physical chemists who want to put their knowledge to use, in a fascinating field, whose mysteries are yet to be unfolded. The arrival of subsequent volumes on the subject will be awaited with much eagerness.

A. J.

Peace or Atomic War. By Albert Schweitzer. (Asia Publishing House, Bombay-1), 1958. Pp. 45. Price Rs. 3·00.

This booklet embodies three broadcast Appeals from Oslo, made in April 1958, by one of the most challenging personalities in the world today. Dr. Schweitzer, who has the unique distinction of having won Doctorates in four subjects, *viz.*, Philosophy, Theology, Music and Medicine, and who gave up the glittering prizes of life to become a medical Missionary in the jungles of Africa, has raised his powerful voice against nuclear tests and Atomic warfare. "Generation after generation, for centuries to come, will witness the birth of an ever-increasing number of children with mental and physical defects." Discussing the perils of an Atomic war, he quotes an American General as saying, "If at intervals of ten minutes, 100 H-bombs are dropped over the U.S.A., there would be a casualty list of 70 million people. Countries like England, West Germany and France could be finished off with 15 or 20 bombs". 9235 leading Scientists of all Nations have declared emphatically against the continuance of nuclear tests ; but the Atomic Powers lend their ears only to the reassuring and propaganda statements of their own scientific stooges. Quite recently, there have been reports of successful U.S. nuclear tests in outer space, and these will weave new deadly radiation belts round the Earth. The rate of radioactive Strontium fall-out from the stratosphere is stated to be very much faster. "The ethic of reverence for life is the ethic of love widened into Universality," says this great Man of Peace ; "a single H-bomb can destroy a million human beings," gloats the Cold Warrior. Man's survival in this planet depends upon which of the two attitudes to life will survive.

S. R. K.

Biochemical Society Symposia No. 15—Metals and Enzyme Activity. Edited by E. M. Crook. (Cambridge University Press, London N.W. 1), 1958. Pp. 102. Price 21 *sh.*

The symposium under review is a collection of the papers read and the discussions held in the Conference of Chemists and Biochemists at the University of Leeds in 1956 and has been edited for publication by E. M. Crook. An increasing number of enzymes have recently been found to require for their activity, trace elements such as zinc, molybdenum and the like, and every one will welcome the book for its comprehensive survey of our present knowledge in this field.

In the first paper, R. S. Nyholm has discussed the nature of the bond between metal atoms and the organic groups to which they are attached. The function of metal ions in enzyme systems has been discussed by L. E. Orgel and has been brought up-to-date in the light of recent findings. It is one of the best review articles so far written on the subject and is noteworthy for its critical analysis of the various possible types of interaction between metal ions on the one hand and substrate or enzyme molecules on the other. B. R. Rabin has an article on the significance of the metal peptide complexes in relation to proteolytic activity, and has discussed in it the earlier hypothesis on the subject put forward by E. L. Smith and I. M. Klotz.

Non-specific activation by metal ions has been **dealt with by F. C.** Happold and R. B. Beechey, with particular mention of the effect of sodium, potassium and ammonium ions on tryptophanase activity. Also in a very lucid account of the function of heavy metals, F. Bergel and R. C. Bray have referred to the role of such metals in oxidations catalyzed by Xanthine oxidase and other metallo-flavo proteins. In the concluding article, E. C. Slater has presented a well documented survey on hæmoproteins with special reference to cytochromes.

The book is well got up and is a very valuable publication dealing with the biological significance of metal ions. Its contents will appeal to a wide range of research workers, including inorganic and organic chemists, biochemists and specialists in the medical sciences.

P. S. SARMA.

Advances in Enzymology, Vol. XX. Edited by F. F. Nord. (Interscience Publishers, Inc., New York), 1958. Pp. vii + 488. Price $ 12.50.

The current volume of *Advances in Enzymology* is noteworthy for the breadth of its coverage and in keeping with its international character has contributors drawn from various parts of the world including the U.S.S.R. The topics reviewed in this volume include optical activity with reference to enzymic synthesis of optically active compounds occurring in nature, Kinetics of alcohol dehydrogenase—DPN interaction, Imidazoles in biological systems, Uridine diphosphogalactose, Substrate and mode of action of Neuraminidase, Components of the respiratory chain in animal tissues, Enzymology of the plastids, Transformations of steroids in micro-organisms. Mechanism of hydrolysis of choline esterase and related enzymes, Biosynthesis of dicarboxylic acids in plants, Pectic enzymes and their substrates and Antibiotics in plant pathology. The presentation in every case is well documented and is followed by a list of pertinent references. The book has a Foreword by the Editor who cites a few well chosen examples to illustrate the set-backs suffered in the development of new ideas by the operation of the personality cult in the scientific field.

Among the highlights in this volume, the article by Barnard and Stein entitled "The Roles of Imidazole in Biological Systems" is timely and fulfils a long-felt need for an extensive coverage of the literature on the imidazole, which is fast getting recognition as a group to be reckoned with, in explaining the catalytic activity of various enzymes. The imperative necessity for a group specific reagent for imidazole is stressed as also the various aspects of imidazole such as its chemistry, catalytic activity and chelating property. The essential nature of the imidazole group in the activity of choline esterase is also discussed at length by Davis and Green, drawing on the evidence obtained from Kinetic and inhibition studies on this and related enzyme systems.

The enzymology and biology of Uridine diphosphogalactose is reviewed by Kalckar and in this he also traces briefly the work carried out by his group on the etiology of the disease, "galactosemia".

The article by Slater entitled "The Constitution of the Respiratory Chain in Animal Tissues" is a critical appraisal of the claims of various compounds commonly considered as components of the respiratory chain. The picture of the respiratory chain as envisaged by this author is in broad agreement with the findings of the other research workers in this field except for the position of cytochrome '*b*' which does not find a place in his scheme in the pathway of oxidation of DPNH in mitochondria. However, as emphasised by this author, the last word on the subject has not so far been said and the increasing tempo of research evident in this field may soon help to clear much of the uncertainties which exist at present in regard to the role of Vitamin K, α-tocopherol and related compounds as carriers in the respiratory chain.

Among other articles of interest, may be mentioned the one by Sissakian, who calls attention to the various biochemical functions the chloroplasts have, in addition to their role in Photosynthesis. The field of steroid transformations by micro-organisms is surveyed by Vischer and Wettstein mentioning in particular the ample opportunities for basic research which exist here for the enzymologist.

Though not entirely free from typographical errors, the book in its get-up and in the selection and treatment of topics comes up to the high standard, which one has come to expect of this annual collection of authoritative reviews in Enzymology.

P. S. SARMA.

Surgical Convalescence. By F. C. Dohan and others. (*Annals of the New York Academy of Sciences*, New York, Vol. 73, Art. 2), 1958. Pp. 381-538.

The process of recovery of a patient to the original normal working state after a surgical operation depends on physical, chemical, metabolic, psychological, social and economic factors.

This monograph has explored the factors influencing the total duration of the convalescent period after surgery and is quite an unique contribution to our knowledge of surgical convalescence.

The fifteen scientific papers forming the monograph represent extensive clinical studies and biochemical investigations undertaken to understand the various aspects of body response to injury. The observations and conclusions have resulted out of the scientific study conducted on Americans under conditions existing in United States. Whether the same observations would hold good for our patients here in India is to be investigated and studied.

The paper on physiological response of domestic animals during the immediate post-surgical period presents interesting features such as rapid convalescence and demonstration of spontaneous activity immediately after recovery from anæsthesia. This is in contrast to the response we observe among human subjects.

The need for a rehabilitation programme, particularly for those who have prolonged convalescence, has been rightly stressed. This will not only help the patients to get back to their working state earlier but also will minimize the boredom.

In content these papers reflect the surge of interest in research in the field of Surgical Convalescence.

H. K. SRINIVASA MURTHY.

The Basic and Clinical Research of the New Antibiotic, Kanamycin. (*Annals of the New York Academy of Sciences*, Vol. 76, Art. 2), 1958. Pp. 17-408.

Search for new antibiotics, less toxic, and capable of acting on the organisms which have become either resistant or are not inhibited by the antibiotics now in use, is going on at a fast pace all over the world. The claims of many of these have, within a short period of their introducing, found to be premature and exaggerated. In this atmosphere of scepticism, it is heartening to come across this volume, which presents a simple record of the investigations carried out on a new antibiotic, Kanamycin and leaves the reader to form his own opinion on the usefulness and efficacy of this antibiotic.

The Japanese workers, the original discoverers of this antibiotic, have reviewed their work on the isolation, development, properties and early clinical applications. The later researches, carried out mostly in the various laboratories of the U.S.A., have been very lucidly presented by the investigators. The aspects dealt with in the early chapters are chemistry of Kanamycin, microbiological and pharmacological studies, interrelationship of cross-resistance with other antibiotics and the efficacy of the antibiotic on experimental infections.

The latter half of the volume is devoted to the clinical experiences with Kanamycin in pulmonary tuberculosis, pyoderma, *Salmonella* and *Shigella* infections, surgical infections, staphylococcal epidemic in infants and clinical evaluation in resistant bacterial infections.

The basic and clinical researches of this antibiotic, its potential usefulness and limitations in clinical medicine have been very ably summarised in the concluding chapter by Finland and constitutes a critical unbiassed appraisal of the entire study on Kanamycin. M. SIRSI.

Vladimir Pokorny : Grundzüge der Zoologischen Mikropaläontologie Band 1. (Published by Veb Deutscher Verlag der Wissenschaften, Berlin), 1958. Pp. xii + 582. Price DM 48.

Dr. Pokorny's book on Micropalæontology published in 1954 in Czech (*Zaklady Zoologické mikropaleontologie*, pp. 652, Nakl. CSAV Praha, 1954) evinced great interest and micropalæontologists all over the world owe a debt of gratitude to the author for placing before them the present German edition which obviously will be read and understood by a much wider circle. Micropalæontology today has acquired much importance because of its ready application to stratigraphical problems in the oil industry. The available literature is vast and the groups that come under microfossils are ever on the increase. Marcus Hanna (Significant Advances and Trends in Geology—*Proceedings, 4th World Petroleum Congress*, Section I/D. Rome, 1955) pointed out that present-day palæontology is not mere descriptive palæontology but tries to understand and interpret what fossils mean with reference to the sediments in which they are found. There is no denying that all fossils, large or small, are useful. But microfossils being small tend to show a greater uniformity in character over wider areas and therefore have a special attraction to the palæontologist engaged in economic work. The "Grundzüge" under review is a more advanced text-book than the English "Principles of Micropalæontology" by Glaessner and covers not only the descriptive part of micropalæontology but also the various methods of preparing the sample, the choice of which again depends on the group of microfossils one wishes to study, photography of

microfossils, methods of correlation and the stratigraphic as well as geographic distribution of the various groups of microfossils. The author has taken note of recent researches in the field of Cretaceous-Tertiary boundary and has taken the top of the Maestrichtian as the end of the Cretaceous period.

The book is divided into 10 chapters, the first three of which deal with definition and concept of Micropalæontology; this is followed by a brief historical survey, collection and methods of preparation for the study of the various kinds of microfossils including special techniques, the use of ordinary stereomicroscope, polarizing microscope and electron microscope in the study of microfossils and methods of correlation, both local and regional. The groups of fossils described are the Protozoa (Radiolaria, Thekamœba, Foraminifera and Tintinnina), some organisms whose systematic position is not clear (Pithonella, Stomiosphæra, Cadosina and Oligostegina), Chitinozoa and Hystrichosphærids. A very welcome feature of the book is the numerous large and clear illustrations which are placed alongside the descriptions for easy reference.

Foraminifera naturally take up the greater part of the book. There are certain departures from the classification of Cushman as a result of more recent systematic studies bringing in a happy blend of the researches made in the USSR and allied countries as well as those from outside this sphere in Europe and America. There are minor taxonomic points in which fellow palæontologists may differ from the author, for example: the inclusion of the arenaceous forms Geinitzina and Spandelina in the typically calcareous group Nodosariidæ, the inclusion of Gumbelitria under Orbulinidæ while the related forms Gumbelina and Pseudotextularia are found under Heterohelicidæ. The treatment of Lenticulina under various subgenera is a point about which there are likely to be differences of opinion. In some cases the ranges of genera given do not conform to their known ranges. Some of the important examples are Siderolites (U. Cretaceous—Recent), Miscellanea (U. Cretaceous—Recent), Aktinocyclina (M—U. Eocene), Halkyardia (M. Eocene—Aquitanian). As far as the reviewer is aware Siderolites is restricted to the Maestrichtian. Miscellanea is typically Paleocene, Aktinocyclina is also known from Paleocene and Halkyardia is not known outside the Eocene. The author has included Calcarina as a synonym of Siderolites. This will probably be unacceptable to many palæontologists. Also certain genera like Somalina, Saudia and Fabiania have not been mentioned. These are but minor points and should not distract from the value of the book especially since the book is not exclusively dealing with Foraminifera.

Exhaustive references covering the subjects dealt with in the book, classified under different heads for easy reference, a general index, a taxonomical index and an author index are given at the end.

This is probably the best book on the subject and should prove to be an excellent reference book to both systematic and economic micropalæontologists. The book is well printed and the price is reasonable. It is hoped that the second volume covering Metazoa will be published early. There is no text-book on Ostracoda and this is one of the most useful groups for the economic palæontologist. This has been fairly well covered in the earlier Czech edition and it is hoped that the author will cover this group fairly well in his second volume.

Y. N.

Flowering Plants of Eastern India, Vol. 1. (*Monocotyledons.*) By J. N. Mitra. (The World Press Private Ltd., Calcutta), 1958. Pp. xx + 388. Price Rs. 30·00.

The *Flora of Assam* by Kanjilal *et al.* (1935-40) is the last important work on the Flora of a part of Eastern India, but leaves a series lacuna in knowledge owing to the non-inclusion of Monocotyledons of Assam except Gramineæ. Mitra's present volume dealing with the Monocotyledons of Eastern India is, therefore, a welcome addition to the knowledge of Botany of the region in general and those of Assam in particular.

The other merits of Mitra's volume are the presentation of the 35 monocot families of Eastern India in a classification of his own and the enunciation of a comprehensive 'key' for easy identification of the families, genera and species, which include a certain exotic monocot species introduced and cultivated in gardens together with their Bengali/vernacular names.

All the same the volume suffers greatly from an over-ambitious scheme which has been too hastily pursued and rapidly rushed through for publication.

The author's classification of the monocot families is claimed to be phylogenetic but it should have been accompanied with a critical analysis and the floristic divisions (p. xvi), followed by a discussion to be thought-provoking and acceptable.

Again, the entire monocot flora of author's Orissa' with the exception of Glumifloræ and

Orchidaceæ, has been represented by 6 species alone (*vide*, pp. 2, 21, 48, 51, 53, 64 in addition to the references to species occurring in whole of Eastern India). Similarly *Paleosanthes bakeri* Hkf., *Smilax quadrata* ADC, *Dioscorea prazeri* Prain & Burkill and *Oxytenanthera parvifolia* Brandis (*ex* Gamble from Assam) are a few of the large number of species collected and deposited in Shillong Forest Herbarium but not included in the present volume. The occurrence in Assam of a very large number of monocot species such as, *Ottelia alismoides* Pers, *Hydrilla verticillata* (Roxb.) Royle and many others described in the volume has not been noted at all. These avoidable omissions are presumably due to the author's not consulting the monocot species available in the former Shillong Forest Herbarium (now Shillong Regional Herbarium of Botanical Survey of India).

While the author has adopted the changes in nomenclature in many instances (*viz.*—*Mondo*, p. 42, *Habenaria*, pp. 274-76, *Malaxis*, p. 294, *Murdannia*, p. 16), he has been almost oblivious of the many such changes in other genera and species. To quote a few, *Cyperus brevifolius* (Rottb.), Hassk (for *Kyllinga brevifolia* Rottb.), *C. globosus* Allion (for *Pycreus globosus* Reichb f.), *Ananas camosus* (Linn.) Merr (for *A. sativus* Schult f.) [*cf.* Santapau, "Flora of Khandala, etc.." *in Records of Botonical Survey of India*, XVI, (1), 337-Seq., 1953] . Similarly, records of new species from Eastern India, such as, *Poa eleanoræ* Bor, *P. poophagorum* Bor in *Kew Bull.*, 1948, 142-143 (1948) and many others have not been included in the present volume, published in 1958.

A number of mistakes in spelling of technical terms, such as occur on pages 53, 143, 152, 155, 278, 312 and 349 could have been corrected in proof. The description of *Galeola falconeri* Hook f. (p. 284) is incorrect.

Despite these mistakes and omissions, however, the get-up and printing are good and the present volume is a definite contribution to the knowledge of Botany of the region.

G. PANIGRAHI.

Bird Hybrids : A Check-List with Bibliography. By Annie P. Gray. (Commonwealth Agricultural Bureaux, Bucks, England), 1958. Pp. viii + 390. (24·5 × 15·5 cm.). Price 50 *sh.* net.

A fundamental point in the modern concept of the species is that it should be reproductively isolated. Reproductive isolation between species is achieved in several ways : geographical or ecological separation, structural differences, physiological incompatibility where distributional ranges overlap, and others. Even though crossing between some strikingly different species is artificially possible, and occasionally occurs also in nature. the hybrids are normally either physiologically defective, or sterile, *i.e.*, they are incapable of breeding *inter se* and thus perpetuating their intermediate characteristics.

The superficial morphology of hybrids is often quite confusing. The confusion is increased by the fact that in many birds the young differ so markedly from their parents in appearance and in others the sexual dimorphism is so great, that in the past young and old, or male and female have sometimes been ascribed to different species, or to the result of hybridization. On the other hand natural hybrids have often been attributed to new species. Descriptions of known hybrids were widely scattered in the literature of many countries and languages and references were difficult to find. Thus, to the serious aviculturist no less than to the taxonomer, the systematist and the scientific field ornithologist the present compilation in a single volume of all the published as well as unpublished, reports of bird hybrids should prove invaluable. It gives a concise history of most of the crosses recorded and furnishes useful suggestive data which have an indirect bearing also on genetics, courtship patterns and isolating mechanisms. The hybrids are grouped within families and are arranged alphabetically under the scientific names of the species involved. Under each species is given a full list of those with which it is said to have hybridized, or with which hybridization has been attempted. Thus, under *Anas platyrhyncha* (the Wild Duck or Mallard)—the progenitor of our domestic duck —hybridization with no less than 50 species is recorded, some belonging to widely distinct genera, *e.g.*, *Anser*, *Branta*, *Mergus*. The strangest report of all is of the hybridization in this duck with a Guineafowl ; the authenticity of this seemingly impossible cross is, however, mentioned as 'extremely doubtful'. Natural hybrids among the Anseridæ, particularly the ducks, are well known, and a number of such have been shot in India by sportsmen from amongst the migratory species. Other groups of birds in which hybridization is common are the Pheasants (Phasianidæ), Parrots (Psittacidæ), Humming Birds (Trochilidæ), Birds of Paradise (Paradisæidæ) and Finches (Fringillidæ). This may doubtless be due, in part, to the fact that these groups con-

stitute popular aviary birds which readily acclimatize themselves to captive or semi-feral conditions. Many species living in widely separated habitats are artificially brought together in avicultural collections and thus given opportunities of mating which are denied in the wild state. Nevertheless that hybridization also does occur on a large scale under natural conditions between sympatric species is shown by the fact that many Humming Birds and Birds of Paradise, formerly recognized as distinct species have been shown, on closer study, to be nothing but natural hybrids.

The comprehensive nature of *Bird Hybrids* and the magnitude of the task of compiling it may be gauged from the voluminous bibliography which covers 78 pages and includes over 1,900 titles. An index of scientific and vernacular names facilitates ready reference.

S. A.

Books Received

Recent Progress in Hormone Research, Vol. XIV. Edited by Gregory Pincus. (Academic Press, New York; India: Asia Publishing House, Bombay-1), 1958. Pp. v + 582. Price $ 13.50.

Handbook of Tropical Crop Disease. By M. N. Kamat. (Prakash Publishing House, 360, Budhwar Peth, Poona-2). Pp. 84. Price Rs. 2·50.

Modern Developments in Plant Physiology. Edited by P. Maheshwari. (Published by Botany Department, University of Delhi, Delhi-8), 1958. Pp. xi + 170. Price not given.

Electroanalytical Chemistry, II Edition. By J. J. Lingane. (Interscience Publishers, New York), 1958. Pp. xiv + 669. Price $ 14.50.

Mechanical Cultivation in India. By D. A. Gadkary. (The Publications Division, Civil Lines, Delhi). Pp. vii + 147. Price Rs. 7·25.

Dairy Microbiology. By E. M. Foster, F. E. Nelson, M. L. Speck, R. N. Doetsch and J. C. Olson, Jr. (MacMillan & Co., St. Martin's Street, London, W.C. 2), 1958. Pp. xvi + 492. Price 42 *sh.*

Principles of Electronics, II Edition. By H. Buckingham and E. M. Price. (Cleaver-Hume Press Ltd., 31, Wright's Lane, Kensington, London W. 8), 1958. Pp. 419. Price 17 *sh.* 6 d.

Practical Invertebrate Anatomy, II Edition. By W. S. Bullough. (MacMillan & Co., St. Martin's Street, London W.C. 2), 1958. Pp. xiv + 483. Price 30 *sh.*

Robert Boyle and Seventeenth-Century Chemistry. By Marie Boas. (Cambridge University Press, London N.W. 1), 1958. Pp. vii + 239 Price 30 *sh.*

Reflex Klystrons. By J. J. Hamilton. (Chapman & Hall, London W.C. 2; India: Asia Publishing House, Bombay-1), 1958. Pp. xi + 260. Price 45 *sh.*

Third Tissuehomotransplantation Conference. By J. M. Converse, B. O. Rogers and others. (*Annals of the New York Academy of Sciences*, New York, Vol. 73, Art. 3), 1958. Pp. 538-868.

Enzymes in Blood. By L. P. White. (*Annals of the New York Academy of Sciences*, New York, Vol. 75, Art. 1.) Pp. 1-384.

Perspectives in Marine Biology. Edited by A. A. Buzzati-Traverso. (University of California Press, Berkeley; Cambridge University Press, London N.W. 1), 1958. Pp. xvi + 621. Price 75 *sh.*

Transport Processes in Statistical Mechanics. Edited by I. Prigogine. (Interscience Publishers, New York), 1958. Pp. x + 436. Price $ 10.00.

Advances in Chemical Physics, Vol. I. Edited by I. Prigogine. (Interscience Publishers, New York), 1958. Pp. xi + 414. Price $ 11.50.

Organic Syntheses with Isotopes, Part II. By A. Murray and D. Lloyd Williams. (Interscience Publishers, New York), 1958. Pp. ix + 2096. Price $ 25.00.

Theories of Figures of Celestial Bodies. By W. S. Jardetzky. (Interscience Publishers, New York), 1958. Pp. xi + 186. Price $ 6.50.

Rational Simplifications for the Buckling Length of Columns. By T. C. Kavanagh. (*Annals of the New York Academy of Sciences*, New York, Vol. 72, Art. 2), 1958. Pp. 353-386. Price $ 2.50.

The Theory and Design of Magnetic Amplifiers. By E. H. Frost-Smith. (Chapman & Hall, London, W.C. 2; India: Asia Publishing House, Bombay-1), 1958. Pp. xix + 487. Price 75 *sh.*

Essential Oils and Aromatic Chemicals—A Symposium. (The Publications Division, C.S.I.R., New Delhi), 1958. Pp. xx + 174. Price Rs. 10·00.

Andhra University Memoirs in Oceanography, Vols. I & II. (The Registrar, Andhra University, Waltair), 1958. Pp. 161 and 237. Price Rs. 15 each.