REVIEWS

Asbestos Exploration in Roro—A Prospective Strategy. By P. C. Pal. Assisted by B. Narasimha Rao and P. Unnikrishnan. (Dr. P. C. Pal, Reader in Geophysics, Osmania University, Hyderabad 500007, on behalf of the Asbestos Consultancy Project), Pp. vii + 90. Price not given.

This presents a case study of geophysical exploration for asbestos in the ultramafics of Roro, Singhbhum District, Bihar. The project is said to have been undertaken by the Centre of Geophysical Exploration, Osmania University, Hyderabad, at the instance of M/s. Hyderabad Asbestos Cement Products Limited.

Deposits of non-metallic minerals, except perhaps of graphite, do not generally offer any directly usable signatures to plan out an effective strategy for exploration by the geophysicist. Asbestos particularly seems a rather intractable case, as this mineral occurs in very thin streaks and narrow bands in serpentinous rocks. Added to this, we have the rugged topography and the complexity of geological conditions. Keeping these factors in mind, the reviewer felt, at the outset, that the project taken up by the author was indeed venturesome. However, after going through the detailed account of the investigations, carried out assiduously by adopting a multi-prong attack on the problem, the impression gathered is that a very good job has been done in a thorough going manner. A large volume of magnetic and electrical resistivity data has been collected purposefully and scanned ably by keeping a close grip on the geological details.

In spite of the complicated set of conditions some meaningful interpretation of data has been made adopting different smoothing techniques and reducing noise levels. It would have been very interesting and instructive if the results of the drilling obtained in the three blocks of K-zone recommended as prospective fibre bearing areas, were also included. Perhaps, the drilling results were not available when the book was written. It is to be hoped that these results will be published soon, since the exploration strategy outlined by the author can have application in other areas as well where the geological conditions are similar.

On the whole, the author deserves to be complimented for presenting this interesting case study. The printing and get-up of the book is very good.

M. B. R. RAO.

Studies in History of Medicine (Quarterly). Edited by Hakim Abdul Hameed; Volume I, No. 1, March 1977, Pp. 1 to 100; Volume I, No. 2, June 1977, Pp. 101 to 182; Volume I, No. 3, September 1977, Pp. 183 to 268. (Institute of History of Medicine and Medical Research, New Delhi 110 062); Annual Subscription : Rs. 25·00, £ 7.00, $ 12.00; Single copy : Rs. 7·00, £ 1.75, $ 3.00.

There are many ways to study medical history and many reasons for such a study. Some study it in order to gain a better understanding of history in general. Medicine and disease have had an undeniable effect on the whole of history, and the medical behaviour of a period can be regarded as a kind of projective test of the total culture of that period. We know much more about a society when we know how it treated its sick and what it thought disease to be. But perhaps the most usual reason for studying medical history is the desire to understand medicine itself and grasp its techniques, its organization, and its underlying ideas The

desire and need to understand medicine is not confined to the medical profession. It is of personal concern to everyone today.

The medical systems of earlier times are instructive both in their similarities and in their dissimilarities to the medicine of today. Medical history is a valuable antidote to certain mental attitudes growing out of the unavoidable specializations of modern times. It is a most valuable feature of medical history that it makes us conscious of the role of important theories, for better or worse, at all times.

A doctor cannot appreciate too early the fact that his profession is a part and product of society and that it is always closely connected with religion, philosophy, economics, politics and the whole of the human culture. Medical history opens the eyes to these social factors without which the problems of health and disease cannot be properly understood.

A man can be a competent doctor without a knowledge of medical history. But an acquaintance with medical history can make him a better doctor.

A new force that changed the direction of medieval medicine was the impact of Arab Science on the Western world. It is well established that Arab medicine was greatly superior to contemporary western medicine in its, far more complete knowledge of the Greeks, in its extensive drug lore and in its development of medical hospitals.

Although ancient civilizations have died out, the oriental civilizations of the river valleys of India and China have survived up to the present time and their systems of medicine have survived with them. Thousands of practitioners still apply this ancient types of medicine to millions of patients. A knowledge of these medical systems and their history is of immediate practical importance for successful introduction of modern scientific medicine.

In this context one may recall the words of the eminent medical historian Henry Sigerist "Since India is confronted with the problem of indigenous medical systems and will be so for a long time, an Institution of the History of Medicine could greatly help to clarify the situation".

In view of the importance of the studies in the history of medicine, the establishment of the Institute of History of Medicine and Medical Research, New Delhi and the publication of its quarterly journal *Studies in History of Medicine* is to be welcomed. It is hoped that this new journal will by its content bring fresh insights into the new discipline of history of medicine.

The contributions cover a wide range of subjects—Arabic medicine and medicine in Muslim period, India's contribution to Medieval Arabic Medical Education and Practice, Europe's debt to Muslim Scholars of Medicine and Science, contribution of Muslims to Biology, surgical developments in Medieval Arabic Medicine, Arab pharmacology, Arab's knowledge of Chinese drugs are some of the titles of the articles presented in these three numbers of the first volume.

A critical review of the life and work of Muslim Scholars presented, brings cut vividly the need for further study in depth, in this area of biographical research.

M. SIRSI.

Annual Review of Astronomy and Astrophysics. Volume 15. Edited by Geoffrey Burbidge. Associate Editors : David Layzer and John G. Phillips. (Annual Reviews Inc., 4139 El Camino Way, Palo Alto, California 94306, U.S.A.), 1977, Pp. 602, Price : $ 17.00 in U.S.A; $ 17.50 Elsewhere.

The fifteenth volume in the series of *Annual Reviews of Astronomy and Astrophysics* contains 18 articles covering a wide range of the spectrum. The very first article by E. J. Opik on "Dogma in Science" contains some very interesting anecdotes of his personal experience concerning preconceived notions and dogmatism in science.

Of the other seventeen reviews, two deal with our planetary system—one concerning all aspects of Mercury like size, mass, orbit rotation and atmosphere, etc., and the other is a specialized article on the Jovian Magnetosphere. Three articles are concerned with the Sun—The origin of solar activity, Large scale solar magnetic fields, and Mass and Energy flow in the solar corona. Only one article is concerned with stars in general and it is about the consequences of mass transfer in close binary systems.

Two articles are devoted to the Interstellar medium—the interaction of supernovae with interstellar medium, and formation and destruction of dust grains. There is an excellent review by J. H. Oort on the galactic centre, discussing various aspects of its radio and infrared emission. The subject of external galaxies is dealt with in four articles—Seyfert galaxies, Clusters of galaxies, Theories of spiral structure and also of galaxy formation. Two more reviews are devoted to pulsars—one is on recent observations and the other is on interstellar scintillation of radiation from pulsars. There is also a review devoted to transition probability data of molecular spectra that are of astrophysical importance. Finally, the present status of observational data and theoretical interpretation of the X-ray emission from extragalactic sources is reviewed in the last article.

CH. V. SASTRY

Annual Review of Biochemistry. Volume 46. Edited by E. E. Snell, P. D. Boyer, A. Meister, and C. C. Richardson. (Annual Reviews Inc., 4139 El Camino Way, Palo Alto, California 94306, U.S.A.), 1977. Pp. 1120. Price : $ 18.00 in U.S.A; $ 18.50 Elsewhere.

The forty-sixth volume in this series contains 29 reviews and a prefatory article by Sarah Ratner. These occupy 1,026 pages and the index runs into 94 pages. These series volumes always give a chance to catch up with the voluminous literature pouring out each year in biochemistry. The present volume has approximately 7,000 references; not all of them refer to the recent publications because the authors have attempted to review the progress in each subject, over the years, rather than limited to the work done in the previous year. In fact this series is fast becoming an "annual collection of reviews of biochemistry" They certainly do not tell what happened in the subject during the period covered.

The topics covered can be subdivided into 9 articles on energetics and lipids and membranes, 11 articles on proteins and enzymology, 4 articles on vitamins and metabolism and 5 articles on nucleic acids. One interesting new addition is an article on oxidative phosphorylation and photophosphorylation written in separate parts by six authors describing state of art in this baffling subject. Reading through these views of the experts, one gets the feeling that entirely new thinking and approaches are needed to solve the problem of mechanism of energy conservation.

A number of current discoveries and new developments are ably reviewed, *e.g.*, ADP-ribosylation of proteins, mechanism of action of vitamin K in gamma-carboxylation of glutamic acid in preprothrombin, recombinant DNA, and low-density lipoprotein pathway and atherosclerosis.

There are 99 obvious names of Indian, origin in the author index and of these only one paper published in 1964 represented work done in an Indian laboratory. A number of other papers published from India were worthy of coverage in some of the 29 articles.

T. RAMASARMA.

Annual Review of Microbiology, Volume 31. Editor : Mortimer P. Starr, Associate Editors : John L. Ingraham and A. Balows. (Annual Reviews Inc., 4139, El Camino Way, Palo Alto, California 94306, U.S.A.) 1977, Pp. 695, Price: $ 17.00 in U.S.A.: $ 17.50 Elsewhere.

Volume 31 maintains the tradition standard of this series for its wide reader appeal, quality and economy. The first chapter is a lucid account, by Michael Heidelberger, of

the scientific life and career of one of the esteemed scientists of U.S.A. Everyone would enjoy reading this autobiographical sketch, as well as a description by D. L. Gutnick and E. Rosenberg on oil tankers and pollution.

Other chapters deal with a broad array of 23 different subjects. This volume is strong on taxonomy, morphogenesis, differentiation, metabolism, chemotherapy and the molecular aspects of microbiology, especially on tumour and non-tumour viruses.

In addition to articles of direct interest to microbiologists, articles of more general interest are also included. Such articles pertain to tandem genetic duplications, biosynthesis of polyene macrolide antibiotics, phagocyte lysosomes and behavioral genetics of Phycomyces. These all offer us a chance to expand our limited areas of interest.

This series should be a part of every biological sciences reference library, and individuals with an immediate interest in microbiology will find this volume a reasonable investment for keeping abreast of recent developments.

T. RAMAKRISHNAN.

Soil Microorganisms and Plant Growth. By N. S. Subba Rao. (Oxford and IBH Publishing Co., 66, Janapath, New Delhi 110 001) Pp. vi + 289 **Price:** 15·50.

The subject-matter covered by this publication is becoming increasingly important in our understanding of the soil-plant relationships so as to exploit the same for better productivity per unit area of the land and within a given period of time. The author has brought out in the first five chapters of the book the basic aspects of soil, plant and microbes and their inter-relationships. In the next five chapters he has brought out various aspects of biological nitrogen-fixation, covering different groups of microorganisms and the biochemical steps involved. Chapter 11 on Soil Microorganisms, Organic Matter and Plant Growth and the next one on "Nitrification and Denitrification" are brief and limited in their coverage. The next five chapters deal with selected topics of interest in this field of soil-plant relationship. The Appendix lists the most important media used in microbiological studies, in relation to plant growth.

The subject-matter covered is adequate in some chapters as in Chapter 9 "Rhizobium and Root Nodulation", but not so in others. In some places the author has attempted to give a full coverage on the latest developments, whereas in others the treatment is either sketchy or too preliminary. Also supportive data given in some of the tabular statements are too old and may or may not be relevant to the present-day technology of intensive crop production and using the high yielding crop varieties. Since more recent data are available from the publications of works by several other authors in India and abroad, he should have taken into account these later findings in dealing with the subject, instead of limiting the references to the findings of himself and his colleagues, which would have added more value to the treatise. On the whole the review of different topics gives a fairly good reading, though not of uniform standard from the beginning to the end.

Though there are several books available for the students of Soil Microbiology to understand the inter-relationships between plant, soil and microorganisms, this book highlights the various aspects in a concentrated manner and is therefore a welcome addition to the collection of books in Agriculture and Soil Science. Post-graduate students and research workers would certainly find it very useful. The book carries valuable data and information on both basic and applied aspects of the subject and is relatively free from mistakes. The author deserves to be congratulated for his contribution to Agricultural Microbiology in this Country through this valuable publication.

G. RANGASWAMI

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