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March 10, 1975.

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Insect-pollination in Ber (*Zizyphus mauritiana* Lamk.)

Ber fruit contains appreciable amounts of vitamins 'A', 'B' and 'C'. It has more protein, calcium and vitamin C as compared with apple. The caloric value per 100 gm of the fruit has been reported to be 55 and it has 75-150 mg of vitamin C per 100 gm of the fresh fruit².

The flowers of the Ber are cross-pollinated. Because of its pollen being heavy and thick in

nature, insects like the honeybees (*Apis* spp.) and the house fly (*Musca domestica*) have been reported to play an important role in its pollination^{1,3}. The present author while conducting survey on the insect-pests of forest trees during August-November, 1974 observed the yellow wasp, *Polistes hebraeus* (Fabricius) visiting ber flowers. This pollinator was abundant throughout the flowering period of this stone fruit and showed its maximum activity between 12-2 P.M. daily. It visited 18 flowers per minute. It is thus a new addition to the list of insect-pollinators of Ber already reported.

It is concluded that *P. hebraeus* may not be considered as a nuisance but an important pollinator of the Ber and its nests near or in the Ber orchards should not be destroyed.

College of Agriculture, J. S. DHALIWAL.
Punjab Agricultural Univ.,
Ludhiana, May 2, 1975.

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REVIEWS AND NOTICES OF BOOKS

Gene and the Genetic Code: The Chemical Basis of Life. By J. D. Cherayil, (Tata McGraw-Hill Publishing Company New Delhi-49), 1974. Pp. 187. Price Rs. 24.00.

Although Watson and Crick postulated the double helical structure for the genetic material DNA in 1953, this discovery did not have the immediate impact it should have. With the recognition of this work by the award of Nobel Prize (for Physiology and Medicine) in 1962, there was a sudden explosion in knowledge of the chemical basis of genetics and a new branch of science, molecular biology, came into existence. In less than 5-10 years the finer details of the genetic code, protein biosynthesis, etc., were worked.

In this book of 187 pages Dr. Cherayil tells us the story of these exciting developments. The book is divided into 8 Chapters—Introduction; Concept of the Gene; Gene and Protein; Chemical Nature of the Gene, Nucleic Acids and Proteins; Deciphering the Genetic Code; Mechanism of Nucleic Acid Biosynthesis; Mechanism of Protein Biosynthesis; Other Functions of the Gene. Each Chapter is self-contained with its own bibliography.

The book is written in a simple and lucid style. The concepts are stated clearly. It is also happily free from many printing and grammatical errors; the reviewer found only one or two printing errors and a single grammatical error—more simpler—on p. 47.

The effort of the author to pack as much information as possible into this little book has resulted in a scanty treatment of certain topics. Chapter 5 on deciphering the genetic code in some places sounds like a dictionary of scientific words in molecular biology. This has also led to juxtaposition of certain statements which do not follow a logical order. Further, in his effort to explain certain concepts in clear terms, he has repeatedly used the phrase "in other words" which has a jarring effect. There are a few loose statements such as the one on p. 27 on the net charge on a protein molecule and the one on p. 57 on the secondary structure of a protein.

The book covers adequately all the aspects of the gene and the genetic code. However, the reviewer wishes that a chapter on genetic engineering, at least on the possibilities and limitations, had been added;

the author makes a cursory mention of this on p. 129. The possibilities in this area are highly exciting and at the same time it has raised moral and ethical questions.

The book is highly readable and will certainly be useful to those for whom it is meant, students in biological sciences and in other fields like Chemistry and Physics. This can be an excellent popular science book also; the reviewer wishes that such books were available in Indian languages for the benefit of the non-English-knowing public.

M. S. N.

Drug Development Communications (Vol. I, No. 1). Editor: Christopher T. Rhodes, (Marcel Dekker, Inc., 270, Madisan Avenue, New York, N.Y. 10016), Pp. 87:

This new journal supplements and complements the information provided by the many existing pharmaceutical journals.

The article on "Modern pharmaceutical development" analyses and discusses the role of development in pharmaceutical industry in terms of products and processes with examples of the organizational form of development groups in four technologically advanced countries.

How the worker's morale can be considerably improved by the assistance provided by a computer is very well depicted in the article "The people computer interface in a capsule molding operation".

Other contributions include "Some physical characteristics of microcrystalline Cellulose", "Perfluorooctyl bromide emulsions as radio opaque media" and "A kinetic study of the solid state transformation of sodium bicarbonate to sodium carbonate".

The journal intends to cover all aspects of the development and production of drugs including both the technical and organizational aspects of the pharmaceutical industry.

M. SIRSI.

Rothamsted Experimental Station Report for 1973. Parts I and II. (Lawes Agricultural Trust, Harpenden, UK), 1974. Part I: Pp. 412; Part II: Pp. 275. Price both parts £ 3.00.

The progress of work at Rothamsted continues to be as stimulating as ever. This year a new Department of Molecular Structures has been added to the station. Significant findings reported are the methods attempted saving nitrogen loss, use of adhesives and microencapsulation in the formulation of pesticides in regulating their selectivity and persistence.

Control of viral diseases of plants has always been a great problem, the methods adopted at

present being mainly vector control, etc. The station finding that injection of polyacrylic acid gave control of TMV is reassuring and gives hope that a spray reagent may be found.

Part II which consists of special papers by the staff of the station. The papers on physiology of grain yield and root growth of cereals are particularly interesting.

V. N. V.

Treatment of Inborn Errors of Metabolism.

Current Treatment and Future Prospects. By J. W. T. Seakins, R. A. Saunders and C. Toothill. (Churchill Livingstone, Edinburgh), 1973. Pp. 260. Price £ 7.00.

Inborn errors of metabolism constitute a fascinating spectrum of diseases which result from congenital deficiency of particular enzymes caused by the presence of an abnormal or mutant gene. After identification of the diverse biochemical abnormalities in these diseases, the present lines of research have been aimed at the modification or alleviation of these defects by appropriate therapeutic measures. The status of current treatment as well as future prospects form the subject of this monograph which reports the proceedings of the tenth symposium of the Society for the Study of Inborn Errors of Metabolism held in United Kingdom in 1973.

The initial chapters deal with the assessment of dietary treatment of Phenylketonuria (PKU). The results of the collaborative study conducted in U.S.A. from 1967 have been optimistic. The development of the treated PKU children has been found to be normal, irrespective of the mild or moderate levels of phenylalanine in their diets. The hyperphenylalaninaemic variants and the reasons for the low incidence of PKU in females have also been discussed. The important questions as to when to wean these children from the special diet and the probable consequences with regard to growth of intelligence have been analysed. The discussions of the dietary treatment of Histidinaemia, Prolinaemia, Hydroxyprolinaemia and Galactosaemia reflect the particular problems pertaining to these conditions.

Professor Scriver in his Milner lecture has reviewed the several aspects of the hereditary vitamin dependencies or the vitamin responsive inborn errors of metabolism. A perusal of the list (Table 3, p. 138) indicates the universality of the several organ systems involved in these conditions as well as the identified apoenzymes which have been proven or presumed to be the aetiological factors. The discussion includes the guidelines for future research as well as the hazards which follow the indiscriminate use of certain vitamins. The

other papers deal with the treatment of vitamin D resistant rickets as well as the possibilities of alteration at the molecular level by therapeutic measures aiming at the prevention of accumulation of toxic compounds.

Treatment of hyperbilirubinaemia and mucopolysaccharidoses as well as the metabolic aspects of leucodystrophies and lipidoses form the themes of the other chapters.

This elegant monograph contains a wealth of information and will prove of great value to paediatricians, biochemists, neurologists and all others interested in diseases of metabolism.

A. G. KRISHNA.

Algae : Form and Function. By G. S. Venkatraman, S. K. Goyal, B. D. Kaushik and Paromita Roy Choudhury. (Today and Tomorrow's Printers and Publishers, New Delhi), 1974. Pp. i-v + 562. Price Rs. 75.00 or \$ 15.00.

Generally, the algae have been taught in the various Universities in India since quite a long time, purely from the point of their structure, life-history, interrelationships and their bearing on the origin of land plants. This has mainly been due to the strong influence of the classical work of Dr. F. E. Fritsch in his *magnum opus* entitled *The Structure and Reproduction in Algae* published in two volumes (1935, 1942). The recent advances in the various disciplines of Botany particularly from the experimental angle which mostly includes cultural studies and the study of plant cells at the ultra level have thrown significant light for a proper understanding of their structure and metabolism. From these points of view, the algae have served as suitable material for providing a rich source of information. Taking all these points into consideration, Dr. Venkatraman and his co-authors have made a creditable attempt in a novel manner by providing an account of the algae from the point of view of their form and function. After an interesting foreword by Dr. G. E. Fogg and a good preface by the authors on the scope of the work, there are extremely well-written accounts on General Morphology and Ecology, Metabolism and Economic Aspects of Algae.

The entire approach is new because the information provided is organised into a series of well-thought-out questions with cogent answers on the structure at the ultra level, metabolism and physiology and economic uses of algae.

The accounts on cell organization, physiology and genetics are particularly well dealt with, focussing at the same time the most recent discoveries.

After reading the book, such aspects as general metabolism relating to nutritional requirements, respiration, nitrogen fixation, amino acids and proteins, and mutation and genetics, one wonders at the great potentialities the algae can provide for future work. One is also bewildered at the great economic uses to which they can be employed.

While most of the illustrations are well drawn the photomicrographs could have been better if they were printed on suitable art paper. At the end of each chapter there is an up-to-date bibliography.

On the whole Dr. Venkatraman, who is well known for his expert knowledge on this subject and his co-authors, have to be congratulated for bringing out this interesting treatise on algae from a thoroughly modern approach and their desire that it should be useful to the student community by dedicating the book to them is most apt. This book must find a place in the libraries of all educational and research institutions.

K. SUBRAMANYAM.

ANNOUNCEMENTS

Winter School on Physiological Fluid Dynamics

The Winter School, sponsored by the Indian National Science Academy, New Delhi, will be held at Indian Institute of Technology, New Delhi, from December 8-19, 1975. The travel and local expenses of the participants whose papers are accepted for presentation will be met by the organizing committee. Those interested in contributing the Research papers are requested to send the abstract of the papers by July 31, 1975.

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