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## REVIEWS

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**Annual Review of Biochemistry**, Volume 48. Eds. E. E. Snell, P. D. Boyer, A. Meister and C. C. Richardson. (Annual Reviews, Inc., Palo Alto, Calif., U.S.A.), 1979.

The volume 48 for the year 1979 of the *Annual Review of Biochemistry* is already available and will be of great assistance for research workers in biochemistry and allied fields. As expected it is a collection of 32 reviews covering 1159 pages including a 90-page extensive index. As I have repeatedly commented the reader will not understand what the new discoveries in the field of each of the review during the last year are, but he will get a comprehensive picture of the developments. All the same, glancing through the volume, a perspective emerges on whither biochemistry is going.

It is impossible to give even a superficial treatment of each chapter in this brief comment. The reviewers have kept a uniform excellent standard. Being any way a collection of reviews, they may consider introducing a few more illustrations to break the monotony of continuous text even at the sacrifice of few more references, amongst many already disregarded.

The chapters can be broadly classified under four sub-divisions; cellular membranes and cell surfaces, mode of action and metabolism, macromolecules—primarily proteins, and molecular biology. These have 7, 8, 8 and 9 chapters, respectively. Under membranes coverage was given to: assembly of proteins in membrane trigger hypothesis, lipid asymmetry, prokaryotic ATPase, Ca-ATPase, mitochondrial gene products, transport in mitochondria and cell surface components in cell recognition. An interesting set of articles dealt with mode of action of penicillin and cephalosporins, epidermal growth factor (EGF), neurophysins, ribonucleotide reduction, biochemistry of preimplantation of embryos, activation of adenyl cyclase by cholera toxin, peptide neurotransmitters and phospho/dephospho-enzymes. The chapters on macromolecular structure and function included comprehensive account of histones, subunit assembly of proteins, structure of globin on oxygen affinity of iron in hemoglobin, regulation of nitrogenase (in great detail), kinetic analysis of hysteretic enzymes electron microscopic study of protein-nucleic acid complexes, 3-D structure of immunoglobulins (with interesting illustrations) and one article on photoaffinity labelling particularly of receptors. The coverage of molecular biology had taken into account of all the phases of this rapid-moving field and contained chapters on

RNA-dependent RNA replication, isolation of eukaryotic messenger RNA, histone messengers, RNA processing, initiation of DNA synthesis, DNA repair, structure and function of eukaryotic ribosomes, features of amino acyl-tRNA synthetases and regulation of protein synthesis in eukaryotes. The shift of emphasis to eukaryotes is obvious.

I commend the section on "perspective and summary" at the beginning of each chapter for a busy scientist to have at least a glimpse of the field. These are useful especially for those fields outside individual research interest tending to be narrow in these days of specialization. Interesting to note that Perutz writes in this section for his chapter on oxygen affinity of hemoglobin that his review is an attempt to answer a small part of a question by Keilin many years ago: "how nature could use the same heme for so many different functions?"

I do not think it is appropriate to include many "unpublished data" of the author since these reviews should reflect mostly the work published. To have three such on the same page (531) is striking. Interestingly, the chapter on photo affinity labelling is drawn in part from a Ph.D. thesis of Harvard University of one of the authors, V. Chowdhry.

A cursory analysis of work of scientists of Indian origin showed that their names occur in most fields as before. Sizable participation of Indian scientists in the sequencing SV 40 virus (reference 140, page 1055) in a U.S. laboratory is noteworthy. Citations of work from Indian laboratories remain small. Only two were obvious to me: the paper in *Indian J. Biochem. Biophys.* by Bhat and Padayatty (reference 86, page 856) on histone template activity in rice embryos and the paper in *Int. J. Peptide Protein Res.* by Virudachalam and Rao (reference 12, pages 76-77) on structure of penicillins and cephalosporins from which the whole figure was reproduced. The work from Indian laboratories is still not becoming visible, notwithstanding their publication in foreign journals or being in the fields of current international interest.

This year, however, the *Annual Review of Biochemistry* carried the usual prefatory article entitled "A 'Pure' Organic Chemist's Downward Path: Chapter 2—The Years at P and S" by Michael Heidelberger who compensated any lack of interest in Indian scene otherwise, by extensive coverage of his visit to India at the time of Indian Science Congress in 1951. His account is interesting in many respects—lectures (technical) being held in "pandals" and listened to



patiently by entire families from grand-parents to small children, reverberations of the loud speakers, being impressed by good research of Indian colleagues often with not-too-good facilities, a hospital in Bombay with high standard of sanitation and care of patients, privilege of having a dinner by the Governor and talk with Nehru on a mutually congenial subject of criticism of Dulles (then U.S. Secretary of State), how the people from Mysore palace got involved at the UN, and Bangalore in the elephant project for his immunological studies, on how the Maharajahs of Mysore specially ordered illumination in the beautiful park (Brindavan) in contrast to what would not be possible from the Governor of New York State, the successful experiment conducted on obtaining antibodies to human gamma globulins from elephant serum, and the practical joke on receiving elephants from Mysore which turned out to be exquisitely carved rosewood replicas.

This volume, as of every year's in this series, is a highly commendable work and is worthy of reading by every biochemist.

T. RAMASARMA.

**The Coelomycetes of India.** By R. S. Mathur. [Bishen Singh Mohendrapal Singh, Dehradun (India)], 1979. Pp. 460. Price Rs. 175.00 or \$ 35.00.

The flora of Indian Coelomycetes by R. S. Mathur is surely welcome. Coelomycetes include those groups of imperfect fungi which bear their spores, within some cavity of the matrix on which they grow, usually members of Sphaeropsidales and Melanconiales. The introduction briefly describes different agroclimatic regions, from where the collections have been made, economic importance, classification, general characteristics of this group, fungal nomenclature,

etc. Following 260 pages have been devoted to various coelomycetes reported and arranged, in an alphabetical order. This is being followed by a list of 82 perfect-imperfect and 85 imperfect-perfect names of some pathogenic coelomycetes compiled by the author. Under post script the following topics have been dealt with:— (1) Previous omissions, (2) Latest new records, (3) Identified herbarium specimens. This follows synopsis giving statistical summary of genera, species, varieties and statewise distribution of these fungi. Last few pages have been allotted for Indices, Addendum and Corrigendum.

Good number of species included in this compilation are invalid as they are *nomen nudum*. The genus *Kamatella* is monotypic but one can see as many as three valid species under this genus and one of the synonyms *Botryodiplodia variispora* has been treated as valid.

The author has compiled the perfect-imperfect names of some of the coelomycetes which cannot be done since mere association does not indicate their true genetic relationship unless it is proved by cultural studies. Except abbreviated references, the whole bibliography has been omitted which could have been a useful source of references at one place, for researchers and students, interested in the subject. The amount of printers devil that has crept in has been adequately compensated by devoting last four pages under corrigendum. Though the get-up is good, the calico-bound copy with poor quality paper has been priced excessively high and this will prevent even the professional mycologist from owning copies. However, these discrepancies should not stand in the way of wide usage, since its technical content makes it a must, for mycological and research Institutions and Libraries.

B. A. ULLASA.

#### AWARD OF RESEARCH DEGREE

Kakatiya University, Warangal, has awarded the Ph.D. degree in Mathematics to Shri K. Balagopal, Shri K. Ramesh Chandra; Ph.D. degree in Physics to Shri G. Ramana Rao; Ph.D. degree in Zoology to Shri V. Raghothama Swamy.

Sri Venkateswara University, Tirupati, has awarded the Ph.D. degree in Electrical Engineering to Shri P.

Ramana Reddy; Ph.D. degree in Physical Anthropology to Shri M. Sethuraman; Ph.D. degree in Zoology to Shri G. Subramanyam Reddy, Shri P. Reddanna, Shri C. Sreeramulu Chetty, Shri R. Chandramohan Naidu, Shri M. Onnuriah Chetty; Ph.D. degree in Botany to Shri K. Arthur Victor David.