Advancements in Iron Nutrition Research. A. Hemantranjan, ed. Scientific Publishers, 5A, New Pali Road, P.O. Box 91, Jodhpur. ISBN: 81-723385-5. 1996. Price: Rs 650. 303 pp.

Agronomists and crop physiologists in India have focussed their attention since long on research in plant nutrition especially, on studies relating to mineral deficiencies in crop plants. These studies were mostly directed to the analyses of symptoms of the deficiencies.

However, little effort was made to investigate the physiological/biochemical basis of the deficiencies of macro- or micronutrients. As a result, in spite of many institutions in India working on mineral nutritions in crop plants in the past, there has been no cumulative effect on our understanding of the biochemical processes involved in mineral deficiencies in plants.

Of all the micronutrients, iron plays a vital role in plant growth and development. Fe-deficiency causes chlorosis, and this deficiency is uniquely related to the mobilization and uptake of iron by plants rather than its availability in the soil. The book *Advancements in Iron Nutrition Research* is primarily aimed at focussing this aspect of iron nutrition in plants. The editor has collected 12 review articles which mostly address soil–plant iron deficiency and control, plant root and soil contacts for iron mobilization, phytosiderephore production and siderephore-mediated iron uptake. Besides these, there are short reviews on the role of iron in symbiotic nitrogen fixation and also mycorrhizae-based iron uptake. The modes of iron-mobilization in 'graminaceous' and 'non-graminaceous' plants have been adequately emphasized. While the book contains some useful information on Fe-chlorosis, and on methods for amelioration of iron deficiency in legumes and other plants, it is neither comprehensive nor authoritative. The editor seems to have put little effort in having all the reviews in uniform style and format in presentation, avoidance of unnecessary repetitions and critical treatment of contents. While there are three articles on phytosiderophores (even though one relates to N_2-fixing cyanobacteria), there is no in-depth discussion on the genetic and molecular-biological aspects of iron transport across the membranes; regulations of haeme-proteins and iron–sulphur centres and flavodoxins and ferredoxin. Collecting a number of articles even though they are contributed by the leaders in the field, does not produce a good reference or a good textbook. The book *Advancements in Iron Nutrition Research* suffers from this inadequacy. The topic selected by the editor is an important one; it is quite topical. We need books that deal with plant nutritions for courses in soil biology, crop physiology, plant biology and biotechnology. Although this book contains some valuable information on iron nutrition relating to its mobilization and uptake by plants, it does not meet the needs of students and teachers or the requirements of researchers interested in basic and applied aspects of plant nutrition. The Scientific Publishers, Jodhpur, have been publishing a series of books on plant physiology and related topics. While the readers of plant sciences welcome such publications, it is quite disheartening to see poor quality of illustrations, inadequate indexing, besides printing errors.

In spite of these shortcomings, the book is a timely publication. As stated in the beginning, despite having had a lead in studying mineral deficiency symptoms in plants in India, we have lagged behind in focussing our attention to biochemical and genetic basis of the developments of iron deficiency-symptoms. We need to know the signal transduction mechanisms by which iron controls transcriptional and translational processes; iron-regulation of electron transfer and energy transduction processes. It is hoped that the readers of this book would get sufficient hint that use of cyanobacterial systems offers promises for making advances in these directions.

In short, the book therefore serves an useful purpose but it is rather costly. One hopes to see a copy of this book in college and university libraries.

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The Archaean and Proterozoic Terrains of Southern India within East Gondwana – Textbook and Field Guide. M. Santosh and M. Yoshida, eds. Gondwana Research Group Memoir No. 3, Field Science Publishers, Osaka, Japan. 1996. pages xii + 403.

Gondwana Research Group (GRG) was founded recently by Masaru Yoshida of Osaka University, Japan with active participation by M. Santosh of the Centre for Earth Science Studies, Thiruvananthapuram. The GRG has already published two memoirs (Memoir 1, *Granulites of India, Sri Lanka and Antarctica*, and Memoir 2, *India as a Fragment of East Gondwana*) which have made the geological community, particularly the granulite specialists, to sit up and take notice. The Memoir 3 of the series includes a textbook (Part I, 325 pp) and field guide (Part II, 78 pp) and is a contribution to the International Geological Correlation Programme's (IGCP, UNESCO, Paris) Project No. 368: Proterozoic Events in East Gondwana.

The textbook is organized into sixteen chapters, each chapter presenting a review of some aspects of the main theme. The volume commences appropriately with Mohana Kumar's historical account of the fascinating concept of Gondwanaland from Ptolemy to Yoshida. The linkage of southern India with the Gondwanic neighbours of Sri Lanka and Antarctica (Yoshida and Santosh) and with Madagascar (Windley and Razakamanana) is the next main topic. A brief summary of the deep continental crust of India is given by Mahadevan. Jayananda and Peucat have compiled the isotopic dates of southern India. Remote sensing studies of the Proterozoic, crustal scale shear zones in southern India have been outlined by Chetty. An overview of alkaline magmatism of southern India is provided by Rajesh and Santosh. Genesis of gold, gemstone, graphite and molybdenite in Kerala is discussed with modern laboratory data by Rajesh-Chandran.

A spate of metamorphic studies follows: Karnataka–Tamil Nadu transition zone (Janardhan and Anto), Dharmapuri area (Rameshwara Rao and Narayana), Nilgiri hills (Srikantappa), Madurai Block (Anand Mohan), Trivandrum Block (Chacko, Lamb and Farquar; Santosh;

Satish Kumar and Santosh). The volume concludes with an unrelated paper on evolution of Central Indian craton by Divakara Rao and co-workers.

The field guide describes ten excursion stops chosen on the basis of easy accessibility and availability of good amount of data. Sketch maps with up-to-date descriptions of state-of-the-art laboratory information enhance the value of the field guide, which is perhaps among the best produced in recent years.

The papers are heavily weighted in favour of thermobarometry including recent studies on fluid inclusions and stable isotopes. Geochronology is also a favourite topic. While the enormous output of laboratory data will be useful for interpreting geological evolution of the region, a broad regional map showing tectonic blocks with a brief write up would have provided a good backdrop for discussion. An instructive abstract with each paper will surely have helped a rapid reader, especially in the absence of a well-organized summary. The concluding remarks or summaries given in some papers are so sketchy as to serve the author's only purpose of somehow completing his piece. A large number of papers from Kerala, particularly from Santosh's group may add to the local flavour, but may affect the reach, unless it is more broad based. When we integrate all laboratory data, it may still be necessary to verify them through field relations for which one needs more field work, which does not sadly form a significant part of new research projects.

It is to the credit of the editors and authors that the drawings are neatly and attractively done. Generally, the photographs which substitute for textual description, are not reproduced well enough. Spelling and syntax mistakes could have been reduced by more rigorous proof reading. The reference list is up-to-date, exhaustive and useful to an avid researcher. Addresses of the authors if given in the paper itself would have been very helpful. On the whole it is a valuable compilation, useful for professionals, teachers and students.

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Annual Review of Physiology 1996. Joseph F. Hoffman, ed. Annual Reviews Inc., 4139 El Camino Way, P.O. Box 10139, Palo Alto, California, 04303-0139, USA. Vol. 58. Price: USA $ 54, Elsewhere $ 59. 815 pp.

The Annual Reviews have always been heavy reading. Each volume every year has contained several chapters; each chapter dealing with one particular branch of physiology – respiration, blood, digestion, nervous system, etc. The pattern of presentation is that each chapter is under the charge of a section editor. The section editor then decides on the particular small topic that seems to be of immense current importance in that particular branch of physiology. The current volume concentrates on molecular phenomena that affect the particular branch of physiology that is being reviewed. Thus for example, when the nervous system is being reviewed, in point of fact, the study of one specific ionic channel in the nerve cell membrane is reviewed. The whole volume is devoted to such specific molecular phenomena that are important to the various branches of physiology. Though this is an index of the importance of molecular biology in modern biological thinking, it does tend to give a very lopsided view of the subject concerned.

Given this limitation, one must view this Journal (*Annual Review of Physiology*), as meant for senior researchers, who are already working intensively in the field. Such people will find the annual reviews very useful and the reviews written by very erudite thinkers in the field. This particular issue will be of immense value to those researchers who concentrate on molecular phenomena. Others will find the volume heavy reading and difficult to digest.

One aspect of the Annual Reviews requires special mention. The first chapter is always written by a senior researcher, who writes an informal biographical chapter, on the particular field that has been his absorbing interest throughout his life. The first chapter should be read by all youngsters (graduate or undergraduate), who intend to devote their lives to academic research. They will find themselves being introduced to the excitement and fascination of science. In this volume, the first chapter is written by H. E. Huxley. This is the man who introduced the concept of the 'sliding filament' in skeletal muscle contraction. He introduces the reader to his desire to study nuclear physics, explains why he became disenchanted with nuclear physics (the use of nuclear bomb in the Second World War), his introduction as a physicist to the study of X-ray diffraction and how he came to use this to define the molecular structure of the contractile elements of skeletal muscle. It exemplifies how a strict physicist can unravel biological secrets and positively direct the thinking of biologists. As far as this volume of the *Annual Review of Physiology* is concerned, this particular chapter by H. E. Huxley focusses the reader's mind onto the need for understanding many biological phenomena at the molecular level.

By and large, this journal contains reference material, useful to the senior researcher. It also contains one chapter that will inspire the youngster. This journal should be stocked by every library that deals with biology. Individuals should only buy those volumes that are of particular interest to them.

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