
BOOK REVIEWS

Annual Review of Astronomy and Astrophysics by Geoffrey Bur-Bridge (Published by Annual Reviews Inc, 4139, El Camino Way, Palo Alto, California 94306, USA) Vol. 22, 1984, pp. 635, Price USA \$44/- Elsewhere \$47 -

Every year the Annual Review of Astronomy and Astrophysics brings to the working astrophysicist a varied collection of topical reviews to apprise him of the recent developments in areas not necessarily his own. Since the series is more than two decades old, some of the articles in the current volume are updated versions on the same or similar themes that have appeared in the earlier years. Then there are some which are essentially new. Of the nineteen articles in the current volume at least half a dozen have had their predecessors in the series. Thus Raymond's review on Supernova Remnants is a sequel to earlier reviews on the same subject by Minkowski (Vol. 2, 1964) and Woltjer (Vol. 10, 1972) and so is Brown and Liszt's Sagittarius A and its Environment to Jan Oort's review of The Galactic Center (Vol. 15, 1977). Galaxies and high-energy phenomena associated with them have featured in this volume in no less than five articles, of which the article by Martin Rees on Black Hole Models for AGN's deserves special mention. The Sun and solar radiation have received a wide coverage with Howard's review of Solar Rotation, Wagner's of Coronal Mass Ejections, Chupp's on High-Energy Neutral Radiations from the Sun and Deubner and Gough's premier review on Helioseismology. An excellent review by Pollack describes the Origin and History of the Outer Planets. Two articles on astronomical techniques, the first on Image Formation by self-calibration in Radioastronomy by Pearson and Readhead and the second on Fourier Transform Spectroscopy by Ridgway and Brault, should be of great value to the technically oriented observers. Although stellar physics has only two reviews to its credit, both are of enormous interest. Bruce Margon reviews Observations of SS 433, an object which dominated the astronomical scene a few years ago. Joss and Rappaport describe the Neutron stars in Interacting Binary systems and emphasize how the membership of these stars in close binary systems provides powerful handle on the intrinsic properties of the neutron stars themselves. In contrast, relatively

little has been learnt about these stars from the enormous body of data on isolated radiopulsars.

The prefatory chapter of this volume has been written by Professor Jesse L. Greenstein of Caltech. The essential charm of such a chapter has been somewhat diminished by Professor Greenstein's pre-occupation here with organisational aspects of his activities and by his emphasis on related nonacademic matters. The indexing is as thorough as in previous years and the volume should prove to be as useful as ever.

Indian Institute of Astrophysics, D. C. V. MALIHK
Bangalore 560 034

IRRI's Annual Report 1983 (Published by International Rice Research Institute, Los Banos, Laguna, P.B. No. 933, Manila, Philippines) 1984, pp. 494.

This all-comprehensive report of the Institute has 17 sections, besides three introductory sections on Trustees and Personnel and an explanatory note on the presentations in the Report. The six page Research Highlights is too brief to convey the voluminous data contained in the Report.

A good portion of the Report is devoted to presentation of the research results on Genetic Evaluation and Utilization (GEU) Program. Under this major head there are 13 sub-heads, each presenting the summary of research results for 1983. Under the Section 'Control and Management of Rice Pests', the three sub-Sections deal with Diseases, Insects and Weeds. Irrigation and Water Management form a separate Section. Soil and Crop Management gets very elaborate coverage with eight sub-Sections.

'Climatic Environment and Rice', 'Constraint on Rice Yields' and 'Consequences of New Technology' are briefly covered. The 88 page coverage of 'Cropping Systems Programme' with eight sub-Sections presents analytical data on physical, biological and economic environment, pest control in rice-based cropping pattern and experimental designs and related details and technology transfer techniques, with emphasis on Asian Rice Farming Systems Network.

Adaptive research on farm machinery forms a separate Section. Details on various types of training

programmes to carry benefit to the rice farming communities of the world, collaborative research with other International and National agencies, Information services and related publications are given sequentially from page 455 to 489. The \$23 million financial support received from various Nations and International bodies are listed in page 490.

While this is a routine annual Report presented by any Institute of repute, there are a few things which are special and need to be highlighted. The interdisciplinary approach in carrying out the various experiments in the laboratory, green house and crop fields are reflected all the way through. What is in-store in rice genetic stocks and how they are exploited to solve the present day and future problems in rice production are well presented. Instead of presenting the reports of each of the disciplines of the Institute separately, the emphasis has been on management of soil, water, pests and the crop. Thirdly, the Report elaborates on the importance of 'Transfer of Technology' throughout the research programmes, training of scientists and farmers and production and distribution of audio-visual aids in support of extension works. The Institute's publication of rice literature and popularising the same among the research workers are laudable.

The voluminous data have been presented in a concised form, with illustrative charts and diagrams. The abbreviations and acronyms used in the text have helped to further make the volume 'condensed' in the large 500 page volume. If the timelag between writing up of the research results and printing and distribution of the Report to users could be reduced to the barest minimum, the researchers in the field and others concerned would be better benefited.

G. RANGASWAMI

21 Indira Gandhi Road,
Fairlands, Salem 636 016.

Resource Atlas of Kerala. (Published by Centre for Earth Science Studies, Trivandrum, Kerala State) 1984, pp. 39 + 58 plates; Price Rs. 590.00.

A good knowledge of the distribution and utilisation of the resources of a geographical region is a prerequisite for any integrated planning for the development of a State. The Resource Atlas of Kerala, the volume under review, is an excellent document which provides knowledge of this type about Kerala.

132 maps in 58 coloured plates and 39 pages of material explaining them, cover a wide spectrum of themes. They deal with natural resources, human resources, resource development, infra-structure, and regional developments already accomplished. Seven plates deal with climate, seven with population, nine with regions and regional developments, nine with agriculture, three with communications, three with land use, besides plates on various themes like minerals, hydrogeology, irrigation, forestry, fisheries, industries, tourism, etc. It has been a job well done.

Educational institutions, Academicians, Research Scholars, and even enlightened citizens would find the Atlas very informative. It is hoped that the Atlas would find a place not only in the planning offices of the Government, but also in the high schools of Kerala, so that our future citizens get exposed to the information contained in it. Although the Atlas deals with Kerala, the reviewer feels that the other States of India, and their Educational Institutions can use this Atlas as a model for preparing similar Atlases for the different States of India.

The scientists who prepared the plates, and the printers who produced the Atlas deserve to be complimented. The reviewer would strongly recommend this excellent Atlas for all general libraries, and individuals who can afford.

P. R. PISHAROTY

Physical Research Laboratory,
Navrangpura, Ahmedabad 380009.

Annual Review of Physiology by R. M. Berne (Published by Annual Review Inc., 4139, El Camino Way, Palo Alto, California. 4306, USA), 1985, pp 859, Price: \$30/-

The Volume opens up with certain interesting historical dimensions on teaching of physiology in general and gastroenterology in particular along with the important personal contributions of Horace W. Davenport (Michigan) in the prefatory intellectual chapter.

This year's Annual Review, like in the previous years contains an extraordinarily useful collection of forty-five reviews in the fields of comparative physiology (4 reviews), cell and membrane physiology (6 reviews), endocrinology (7 reviews), gastrointestinal physiology (5 reviews), renal and electrolyte physiology (4 reviews), respiratory physiology (5 reviews),

cardiovascular physiology (9 reviews) and 5 reviews under the special topic of gap junctions.

Each section has been introduced by the Section Editor, briefly highlighting the aspects covered in the different chapters under that section. These introductions are most helpful in knowing quickly what is in the section.

The special section on gap junctions reveals that the understanding of the gap junction membranes has greatly been extended with the application of image analysis techniques to electron microscopy and x-ray diffraction studies of the membranes. The gap junctions are ubiquitous in vertebrate and invertebrate tissues, and are considered to be important in the processes of tissue growth, differentiation, plasticity and homeostasis. The gap junctions are present in both excitable and inexcitable tissues. The special reviews provide an upto date summary of the advances in this important area.

The reviews in the section of cell and membrane physiology has been focussed on the theme of carrier-mediated membrane transport serving movements of ions and molecules in highly specific ways between the living cells and their environment. The transport systems of glucose, sodium, calcium, hydrogen and anions have been reviewed.

In the endocrinology section, the peptide hormones (insulin and other similar factors and growth hormone), their receptors and the cellular mediators of their actions have been reviewed. The intracellular mediator of the action of insulin on target cells has also been covered.

In the cardiovascular section attention was focussed on the role of adenine nucleotides in myocardial metabolism, in vascular smooth muscle, and platelets. The role of these nucleotides as extra-cellular med-

iators in purinergic nervous transmission has also been reviewed.

The respiratory section has covered reviews dealing with the metabolism of lung lipids, particularly the surfactant lipo-proteins which are extremely important.

The renal and electrolyte section part of the reviews has covered the theme of transport of metabolic substrates in the proximal tubule which accounts for the bulk of the reabsorptive work of the kidney. The cell functions of this part of the tubule in transporting of the metabolic substrates and the support of the transport have been reviewed.

The gastrointestinal section includes reviews covering the issues of cell proliferation and differentiation of the gastrointestinal epithelium in which every day about 300 gm of cells are lost and replaced. It is necessary to know well the processes of such a high turn-over of cells in the G. I. tract. The influence of corticosterone, the role of the formation of tight junctions in the epithelium, the processes of cell motility, the enterocyte maturation, and development of micro-villi have been reviewed.

The section on comparative physiology covered the aspects of rhythmicity in living systems. The aspects covered include pace maker cells, circadian rhythms, annual rhythms and the organisation of the biological clocks and timing systems.

The volume will be of highest educative and reference value to specialists working in a wide range of biological and medical disciplines.

T. DESIRAJU

Department of Neurophysiology,
National Institute of Mental Health
and Neuro Sciences, Bangalore 560 029.

ANNOUNCEMENTS

INTERNATIONAL CONFERENCE ON TRADITIONAL MEDICINE

International Conference on Traditional Medicine will be held at Madras, Tamil Nadu, India from 23 to 25 January 1986, at Hotel Adayar Park, Sponsored by Siddha Medical Board, Government of Tamil Nadu. For details please contact Conference Secretary General, International Conference on Traditional

Medicine, Directorate of Indian Medicine, Arumbakkam, Madras 600 106, India or The Official Organizers, 'May & Bel Training & Marketing Services, 14, Sait Colony First Street, Egmore, Madras 600 008, India.