
REVIEWS

Revision of Indian Species of *Glossopteris*'. By Shaila Chandra and K. R. Surange. (Birbal Sahni Institute of Palaeobotany, No. 53, University Road, Lucknow-7), 1980. Pp. 290. Price Rs. 300.

The monograph entitled 'Revision of the Indian species of *GLOSSOPTERIS*' jointly authored by Dr. Shaila Chandra and Dr. K. S. Surange of the Birbal Sahni Institute of Paleobotany, Lucknow represents a unique and noteworthy publication typically worthy of the traditions of the famous Paleobotany Institute in our country.

In the present studies on *Glossopteris*, a genus of tongue-shaped leaves occurring in the permian coal-bearing beds of the Gondwana continents, the authors have tried to define morphologically all the known species described since 1828 from India. These studies are based on authentic type and figured specimens. Even though vast amount of literature has accumulated over years, there has not been any critical and comprehensive publication of *Glossopteris* in one place. This has been done in the present studies and the authors have done a commendable job in describing all the known type specimens in India comprising nearly 70 species. All of them have been figured in natural size and the venation has been drawn on a uniform scale of magnification.

The contents of this monograph include detailed accounts on morphology and taxonomy of the genus *Glossopteris*, studies on speciation, material and methods to be followed, references contained in 89 pages of text, 54 pages of line drawings, 24 pencil sketches and 23 photoplates. While critically going through the monograph, an important fact that emerges is that this interesting genus representing leaf impressions is not a simple natural genus, but an assemblage of similar looking genera and species. Hence, when *Glossopteris* leaves in other continents are also studied and described, it will greatly facilitate the comparison of this interesting genus from different parts of southern hemisphere. It could also be concluded that *Glossopteris* species could be distinguished on external morphological characters. These results bring about vividly that *Glossopteris* species could be used as excellent stratigraphical markers in the field. This monograph will no doubt be useful to Geologists, Coal miners and perhaps all the Paleobotanists.

This publication represents No. 2 under the monograph series of the Institute and is priced Rs. 300 (domestic) and U.S. \$ 60.00 (foreign). This is very nominal especially in view of the excellent glazed art paper used for printing and also comprehensive des-

cription of all known species of *Glossopteris* in India followed by beautiful figures, synonyms, etc. The authors should be complimented for their painstaking contribution on this important material of Indian species of *Glossopteris*.

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Leaf Hopper Vectors and Plant Disease Agents. Edited by Karl Maramorosch and Kerry F. Harris. (Academic Press, New York, San Francisco, London), 1979. Pp. 654.

Vector biology involves incisive treatment of the vector, pathogen and plant/animal, both at the individual as well as integrated levels to emphasise the multiple facets implied in disease transmission. The volume under review seeks to provide a cogent presentation of an intergrated exposition of the role of leaf hopper vectors in crop plant diseases. In attempting to present a coherent synthesis of the recent findings in leaf hopper research, information presented in this volume is discussed under five major sections, the first and second dealing with taxonomy, bionomics and worldwide importance of leaf hoppers as vectors of plant pathogens; the third with diverse types of vector-virus interactions, the fourth with rearing techniques of vectors and vector tissue culture and the last section with some aspects of leaf hopper borne viruses and vector control.

The phylogenetic relationships of leaf hopper vector families, tribes and the number of vector species within certain vector genera and the relationships of vector taxa provide a solid background to our understanding of vector taxonomy. Leaf hopper vectors of pathogenic agents involving 128 species and subspecies in the world have been listed. As a prerequisite for investigations and experimental manipulation of leaf hoppers as vectors, the chapter on leaf hopper bionomics highlights phenology and ontogeny through well documented information on the effects of photoperiod and temperature on the life history of vectors. Very interesting information is also provided on the differing rates of growth and development under variable conditions of temperature and photoperiod resulting in differences in size, form and colour patterns. The biological significance of different aedeagal forms indicating the direct influence of photoperiod on isometric and allometric growth has been well emphasised.

In tracing the worldwide importance of leaf hopper vectors, the host range of the disease agents and vectors is discussed with the conclusion that the epidemiology of diseases is closely related with the natural vectors' way of living, as the disease agents are obligatorily dependent on their natural vectors for spread and survival. In this connection, the life history of both cicadellid and delphacid vectors, their association with plant disease agents in Australia and mechanisms of transmission are discussed with clarity.

The vector-virus relationships relating to aphid, leaf hoppers and delphacids and involving noncirculative and circulative systems are well defined. In an attempt to discuss the vector-virus interactions, mention is made of the creation of data bank for use in formulating ecologically sound approaches to disease control. Polyhedral and rhabdoviruses involved at the organ, tissue and cellular levels and their fate in the plants, in the vector, possible multiplication, etc., have been discussed elegantly, besides localizing them in plant and vector tissues and cells by EM studies. Vectors of plant reoviruses and plant rhabdoviruses have been characterized in a chapter dealing with the cytopathological changes in leaf hopper vectors of plant viruses.

An important area discussed relates to the interaction of mycoplasma-like organisms and viruses in affected leaf hoppers, plant hoppers and plants as well as reports concerning infections of plants, leaf hoppers and plant hoppers where one agent is a known pathogen and the other yet unknown. The information on the transmission of the rice tungro virus at various temperatures appears interesting.

Significant information is provided on artificial and aseptic rearing of leaf hopper vectors as well as use of microinjection for viruses, mycoplasma, spiroplasma and rickettias. An excellent chapter providing stimulating information on leaf hopper tissue culture appears highly useful as well as relevant.

There can be no two opinions regarding the utilitarian value of this well thought out volume which seeks to incorporate the most recent information of leaf hopper vectors and plant disease transmission, a vital area of research of considerable importance in agriculture. It is certainly a treasure house of knowledge and cannot escape notice of every one interested in both basic and applied aspects of biology.

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Annual Review of Public Health, Vol. 1. Editors: Lester Breslow, Jonathan E. Fielding and Lester B. Lave. (Annual Reviews Inc., Camino Way, Palo Alto, California 94306), 1980. Pp. 411.

Public health, today, must explore and keep track of a large array of interdisciplinary problems and issues that relate to many facets of private and public life.

The continuing expansion of significant research and professional literature that affects the field of public health and closely related fields has prompted the launching of this latest addition to the growing family of Annual Reviews.

The volume starts with a review on Health and Disease in the United States—a summary of some of the current data and issues in the health status.

Several of the chapters indicate the benefits and problems of applying epidemiology and biostatistics to the present health scene. Epidemiology represents the recognition that the patterns of occurrence of disease and disability in human communities are determined by forces that can be identified and measured and modification of these forces is the most effective way to prevent disease; attention has been focussed on the interplay of biomedical and social sciences on human health and disease.

There is little doubt that epidemiology should play a major role in the formulation of health policy. Factors restricting its influence ideological and other obstacles to health policy are discussed.

A consideration of quality assessment and an account of how social and political forces have brought about widespread implementation of medical auditing is the subject-matter of one chapter.

Hospital reimbursement outlines the dominant methods of reimbursement in hospital industry and examines the special industry features that set these methods and their accompanying problems. Several areas of statistical literature that are useful in Health Science application are also reviewed.

Medical innovations have not generally been subjected to rigorous evaluation prior to their widespread use by the medical community. The cost implication of professional uncertainty justifies a substantial investment to clarify advantages and disadvantages of the various approaches to common medical problems is a provocative review.

Health planning and regulation effects on hospital costs emphasizes that planning and regulation should be assessed in terms of their effect independently or jointly, on the types of services that are available to and used by defined populations and the total costs they entail.

The new attention to life style risks has contributed to a growing scepticism about the appropriateness and feasibility of a more in activist public role in enhancing the public health. Public health and individual liberty draw attention to this life-style controversy.

The Future of Health Departments examines the structure and role of the state and local health departments and explores some uniquely American basic issues.

'Public Health Nursing', 'the societies response to the need for providing long term care to the elderly' and 'scientific basis for identification of potential carcinogens' are topics reviewed in other chapters.

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botanists the interpretation of rules of nomenclature is an esoteric art. The present authors being aware of the nomenclatural problems faced by the students of taxonomy and with the practical experience gained by working in an organization like the Botanical Survey of India, have done an excellent job by giving a much needed practical guide to botanists of India. The examples are taken mostly from the local flora; this is a welcome change from other practical guides published elsewhere. The narration is brief and lucid. Had the authors included excerpts of principles and articles from the Leningrad Code, the volume could have been very useful to the inquisitive students of taxonomy. Similarly, they could have accommodated a small chapter providing the English equivalents of the meanings of specific epithets frequently employed for the Indian taxa. These are suggestions for the future edition.

The book is more informative than Bennet's "An Introduction to Plant Nomenclature" published in 1979. While appreciating the good get-up of the present volume—in the quality of paper used, printing and binding—its cost should have been at the easy reach of students. This is a volume which should definitely find a place in all the college libraries where Plant Taxonomy is taught. For research students and job seekers who face interview boards in Botany it will be a valuable guide.

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An Aid to the International Code of Botanical Nomenclature. By A. N. Henry and M. Chandrabose. (Today and Tomorrow's Printers and Publishers, New Delhi 5), 1980. Pp. 98. Price : Rs. 30.

Nomenclature in Botany is the assignment of scientific binomials to plants. Scientific naming is necessary because local names often confuse people regarding the correct identity of plants. It is governed by a set of rules in the form of articles developed over the years by the International Association of Plant Taxonomy (IAPT). The rules are given in the "International Code of Botanical Nomenclature (ICBN)" published in French, German and English languages. To many

SHANTHI SWARUP BHATNAGAR MEMORIAL AWARD FOR 1980

Prof. N. Mukunda of the Indian Institute of Science, Bangalore, and Dr. N. S. Satya Murthy of Bhabha Atomic Research Centre, Bombay, shared the award in *Physical Sciences*.

The following are the award winners in other disciplines : *Biological Sciences* : Prof. Asis Datta of Jawaharlal Nehru University, New Delhi and Dr. J. S. Singh of Kumaon University, Nainital; *Engineering Sciences* : Dr. V. S. Arunachalam of Defence

Metallurgical Research Laboratory, Hyderabad; *Medical Sciences* : Dr. P. R. Adiga of Indian Institute of Science and Prof. T. Desiraju of the National Institute of Mental Health and Neurosciences, Bangalore; *Mathematical Sciences* : Prof. R. Sridharan of the Tata Institute of Fundamental Research, Bombay; *Earth Sciences* : Dr. J. G. Negi of the National Geophysical Research Institute, Hyderabad and Prof. B. K. Sahu of the Indian Institute of Technology, Bombay.