

## BOOK REVIEWS

**Physics Demonstration Experiments at William Jewell College** by Wallace A. Hilton (American Association Physics Teachers, Publication Department, Graduate Physics Building, S.U.N.Y. Stony Brook, New York 11794) 1982, pp. 104, Price not given.

A casual look into the book may lead to an apparent conclusion that it is a catalogue of physics apparatus; but it is entirely different from a catalogue supplied by a scientific equipments firm.

Although the preface includes the modest statement that an attempt has been made to give a brief description, with photographs, of demonstration equipment possessed by the Department of Physics, William Jewell College, the book gives in many cases, the procedure for experiments, reference books and Journals, and selected papers reprinted in some cases, providing sufficient information about the experiments. Very brief description, in some cases, is understandable in view of the large number (about 320) of equipment, covering mechanics, heat, sound, optics, electricity and magnetism and atomic physics. Almost every equipment is accompanied by a good photograph, and suggests guidelines for proper arrangements of apparatus.

The book goes a long way in guiding physics teachers to equip themselves and their laboratories. As the book has been prepared with reference to the equipment at William Jewell College, interested persons can get necessary details, directly from the college or from the publishers. Most probably, a large number of physics teachers may expect the book to be published in four or five volumes, instead of one, giving a little more detail regarding description and procedure.

It is desirable that every physics laboratory for introductory and undergraduate courses, possesses a copy of the book and attempts to equip itself to the extent possible.

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**Annual Review of Phytopathology**, Vol. 20, 1982, (Annual reviews Inc. Palo Alto, California, USA.) pp. 467. \$ 27.00 (USA) and \$ 30.00 (Elsewhere).

With the publication of this volume, Annual Review of Phytopathology completes 20 years of its active professional service to the cause of Plant Pathology and its closely related disciplines.

Undoubtedly it has served the purpose of fostering closer understanding amongst different specialists in Plant Pathology—Virologists, Mycologists, Bacteriologists, Nematologists etc., as well as closely related disciplines of Biological sciences; Genetics, Agronomy, Physiology, Biochemistry etc. This was the pious wish of Prof. J. C. Walker, expressed in Vol. 1. The volume begins with a prefatory chapter "Meditations on fifty years as an apolitical Plant Pathologist" by Prof. Kenneth F. Baker of the University of California, Berkeley (USA) and is followed by historical perspectives covering three early pioneers of Plant Pathology, Anton de Bary, B. M. Duggar and Charles Chupp; one paper dealing with Appraisal of Plant disease; five papers concerning Pathogens-Fungi, Bacteria, Viruses, Nematodes and Insect vectors of Procarvates; two papers devoted to Biological and cultural control; one paper on Breeding for resistance and three special papers viz., Advances in Plant Protection Science in China, Closed system agriculture and resource constraints and x-ray microanalysis. The volume concludes with (i) Author index (ii) Subject Index (iii) Cumulative index of contributing authors, volumes 11-20 and (iv) Cumulative index of chapter titles, volumes 11-20.

This volume like all other earlier volumes has highlighted the advancements and progress achieved in some specialized areas of Plant Pathology such as Plant disease appraisal, Genetics of host pathogen interaction, Epidemiology, Biological and cultural control and x-ray microanalysis as an aid to disease understanding etc. These topics are of interest not only to Plant Pathologists but also to those working in allied disciplines. Due to paucity of space it is not possible to highlight the importance of each paper of this volume. Therefore, only a few most important papers which are of topical interest to Plant Pathologists and those engaged in improving the productivity of crop plants are commented upon.

The paper "Meditations on fifty years as an apolitical Plant Pathologist" by Prof. Baker critically brings out his observations on the development of Science of Plant Pathology from many angles Research (Basic and Applied) and funding of research grants, Graduate training, Publications, editing and reviewing etc. Many of the points covered in this article are of utmost relevance and significance to scientists Science administrators, publishers, extension workers and teachers so that they can play their role in a manner conducive to the promotion of Plant Pathology and ultimately for the increased productivity of crop

plants. The historical perspective of the three early pioneers of Plant Pathology—Anton de Bary, B. M. Duggar and Charles Chupp will serve as a source of inspiration to the present day younger Plant Pathologists. The review paper "Genetics and epidemiological modeling of breakdown of plant disease resistance has critically discussed the strategies open to the Plant Pathologists/Breeders to overcome the problem of breakdown of disease resistance either by (i) production of multilines or (ii) *pyramiding* of resistance genes for a number of pathogens in a single cultivar. The paper x-ray microanalysis projects a new technological innovation in the area of in-situ microanalysis in biological studies. Dr Thresh in his paper "Cropping practices and virus spread" while emphasising the critical role of cropping practices in virus spread has projected an "ecological view" of virus epidemics and man's role in these epidemics.

Fungal sporulation is a phenomenon of great of importance to Plant Pathologists and medical mycologists. The review paper "Fungal sporulation" has rightly emphasised the importance of cellular functions regulating sporulation and has justifiably stressed on the need for further work using recombinant DNA method/other methods to have a basic understanding of the regulation of fungal sporulation. The authors of the various papers in this volume should be complemented for their painstaking contributions of great significance to the science of Plant Pathology. The volume no doubt is of profound value to all graduate and Post-graduate students and researchers in Plant Pathology and others working in related disciplines.

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**Ferns and Fern-allies of Meghalaya State, India --**

A. K. Baishya and R. R. Rao, (Scientific Publishers, Jodhpur,) 1982. Pages 162; Price Rs. 100 -

The North-East India is floristically rich and phyto-geographically very important. Information of any kind on any state of this region is useful since the area itself is unexplored underexplored. The present work on Fern and Fern-allies of Meghalaya state deals on a group of plants on which very little

information is available. It is the outcome of strenuous field, herbarium and laboratory work for 5 years by the authors. The studies include 256 species under 91 genera and 29 families which comprise nearly 40% of the Pteridophytic flora of the country. For easy identification purpose, dichotomous keys are provided at family, generic and specific level. Each species is elaborated with original citation, important synonyms, references, short description, useful ecological notes and locality of collection based on original collection of the authors. A total number of 37 plates are included which is an added feature of the book. Generally, the keys provided are practicable though some drawbacks like overlapping of characters, wrong or inappropriate usage of certain words, providing keys to the sub-class in the main key to the families, inclusion of a doubtful or not yet erected new species are observed. The printing mistakes are many notwithstanding the Errata provided. The nomenclature is brought up-to-date as far as possible.

The book will serve as a useful reference book to the students and teachers of Meghalaya in particular for which it is intended. Also, since it forms the first book on the group from this difficult region, it will be useful for all those interested in the studies on Fern and Fern-allies of North-East India in general. The book is recommended for botanical institutions and research organisations.

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**Chemistry and Biochemistry of Legumes (Ed.) S. K. Arora, (Oxford & IBH Publishing Co., New Delhi) p 359: 1982.**

This is compilation of eight review papers contributed by a dozen specialists in the field from five different countries. The subject of chemistry and biochemistry of legumes being very vast in its scope, the authors have, understandably, succeeded only to a limited extent in covering it. However, their attempts on certain major areas such as carbohydrates, lipids,

proteins and toxic constituents have been commendable.

Increasing attention is being paid in recent years to legume crops as a source of protein food in developing countries. Compared to cereals, legumes are physiologically and genetically more complex and hence the success in quality improvement of these crops has also not been so marked. Pulse crops are valued, besides other things, for their contribution towards fixing atmospheric nitrogen in symbiosis with *Rhizobium* for their own benefit as also for the benefit of the succeeding crop. Attempts on genetic improvement of pulses have resulted with some success, but the main obstacle seems to be the adverse relationship between increased yield and reduced protein content. It is only recently our pulse breeders have taken into account the need for breeding varieties for optimum yield as against maximum yield, combining in them qualities for better compatibility with rhizobial symbionts and horizontal resistance to pests and diseases. These aspects are well brought out by J. Smartt in the last article entitled 'Genetic

Improvement of Grain Legumes'. The article on 'Toxic Constituents' by I. E. Liener is also exhaustive and illustrative.

The article on 'Nutritive Value of Food Legumes' by Y. P. Gupta seems to be more biased towards work in one laboratory. It could have been given wider coverage. Also, there are a few overlaps in coverage of subjects such as lathyrism, mineral composition of legumes, etc., which could have been better coordinated.

S. K. Arora has done very well in bringing together voluminous data and information and presenting them in a comprehensive manner for use by researchers and students. The publication would certainly prove to be very valuable to everyone concerned with legume research and development.

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**PALMS OF INDIA—** by T. S. Mahabale, M.A.C.S. Research Institute, Law College Road, Pune-411 004

The monograph consists of 245 pages of text, illustrated by 279 photos, 589 drawings and two colour plates. It has 17 chapters dealing with the history of palm hunting in south-east Asian countries, comparative morphology of palm tree, leaf, crown, root, inflorescence, flowers and seeds. Indigeneous palms of India and of countries and islands around India and their geographical distribution are a special feature.

The copies of the Monograph (Price Rs. 300/- including postage) can be had by sending a demand draft in favour of Registrar, Maharashtra Association for the Cultivation of Science, Law College Road, Pune-411 004.