

impressive reference section of more than 250 references. This includes the work done in the 19th century and the advancements made in the 20th century, which give the reader a good insight into the full cycle of developments made on conversion coatings. The index section placed at the end of the book is also prepared with enough care. The authors' use of language in this book is simple and lucid, which makes the reader's task really enjoyable. In my opinion, the fund of information on conversion coatings contained in this book will no doubt achieve recognition as a valuable reference source, for all those who are in the field of metal finishing. In spite of the painstaking efforts by the authors in writing this book, the reference section could have been compiled with greater care with regard to citing references with adequate details.

As mentioned in the preface, '... the lack of understanding among shop floor workers on how these processes actually work. This inspired us to write this book', the authors have certainly succeeded in their aim – the result is a wonderful book on conversion coatings! The book is produced as a handy hard cover and is reasonably priced. A book to be recommended and one that deserves to become a very popular reference on conversion coatings. I do not have any hesitation in recommending this book for all libraries and as personal collection.

T. S. N. SANKARA NARAYANAN

National Metallurgical Laboratory,  
Madras Centre,  
CSIR Complex, Taramani,  
Chennai 600 113, India  
e-mail: nmlmc@vsnl.com

---

**The Flora of the Palni Hills, Parts 1–3.** K. M. Matthew. The Rapinat Herbarium, St. Joseph's College, Tiruchirapalli 620 002, India. 1999. 364. pp. Price: set Rs 600. \$175, £100.

---

The Palni hills form a part of the Western Ghats of India which is considered as one of the 25 biodiversity hotspots of the world. Some of the very rare and endangered plants of India are found in

the Western Ghats. There are, on the one hand, relics of the intact primary vegetation and on the other, a large number of exotic plants which exert immense biotic pressure on the primary vegetation. The flora drew the attention of the Europeans who spent their summer months on the hills to escape the heat and dust of the plains. The earliest studies were done by Beddome<sup>1</sup> and Bourne<sup>2</sup>, whose lists and reports of the Palni hills are kept in the Library and Archives of the Royal Botanic Gardens, Kew. A comprehensive flora was prepared by Fyson<sup>3–5</sup> over several years, from 1915 to 1932. There has been no revision of the flora since then.

There is an urgent need today for updating and revising such flora of our country. We lament that our genetic resources are depleted because of deforestation and biopiracy. But we do not have an authentic record or check list of plant and animal species which form the bio-wealth of our country. Most of the flora that we have were compiled several decades ago. Little effort has been made to revise them. Taxonomy is after all a taxing subject and not a glamorous area of research. No doubt, there are efforts made to draw up biodiversity registers. This is certainly a laudable effort. But these registers, prepared mostly by lay people and even school children, are not authentic records of properly identified plants. We boast that we have been blessed by our ancestors with a knowledge of health through plants. But we do not have scientific keys to authoritatively identify the plants which are prescribed as remedies. Even the identity of a well-known plant, 'Brahmi', used in Ayurveda is disputed. The name is given to both *Bacopa monnieri* and *Centella asiatica*, plants belonging to two different families<sup>6</sup>. God help the users of the so-called herbal drugs advertised and marketed by Ayurvedic companies!

The present set of books by K. M. Matthew bearing a somewhat similar title as the books of Fyson, is not just a revised version of Fyson's flora. Matthew belongs to the group of Jesuit botanists like Blatter, Santapau, Palithanam, Cecil Saldanha and Manickiam who have made enormous contributions to the flora of India. He spent seven years of his training as a Jesuit in Shembaganur in the Palni hills.

It is during these years that Matthew traversed the length and breadth of the Palni hills, not only studying the flora but also imbibing a deep love and concern for them. Later Matthew took up the study of introduced flora of the Sholas of the Palni hills for his doctoral thesis. Since 1984, Matthew has established and directed the Angalde Institute of Natural History Shembaganur, Kodaikanal imparting experiential environmental awareness of the Palni hills. It would not be an exaggeration to say that the present book is the result of the life-long association of Matthew with the Palni hills.

This set of books is meant primarily for professionals. It has been well researched and the identification of species has been checked with types kept in National Herbaria (Presidency College, Chennai and Central National Herbarium, Howrah), as well as International Herbaria at Royal Botanical Gardens, Kew and Natural History Museum, London. The keys are comprehensive and drawn up logically. The nomenclature is updated in the light of current work. Detailed field notes and original information on the conservation status of plants under stress are some unique salient features of these books. An immense help for amateurs are the two volumes of full-page detailed illustrations, published independently earlier on, which complement the present flora<sup>7,8</sup>. It is highly commendable that 95% of the species included in the flora have been illustrated.

The vernacular names are given only in Tamil script. If these were also given in Roman alphabets it would be more useful. Besides, as the Palni hills border on the state of Kerala, names in Malayalam could have also been given. For the common man it is important to know the uses of plants. A note on the economic importance of plants, especially if they are of medicinal use, would have given added value to the books. It is also important to know the ecological status of not only the plants under stress but also of the other plants as well. Only a brief status of some plants in conventional terms is given. With his vast knowledge of the environmental situation of the Palni hills, Matthew could have given a longer note on the ecological situation of the species along with field notes of each plant.

It is surprising that this set is offered at such a low price. This is well meant, but unfortunately people tend to judge the worth of anything by its price tag. Granted that the low cost is because the books are subsidized. But do we really end to subsidize books of such importance?

It is also a matter of surprise that only 1000 copies have been printed. It may be a realistic estimate of the number of potential buyers in spite of the ridiculously low price of the books. But it is also a sad reflection of the little interest which the people of our country show on our rich and diverse flora. These

books have to be available not only in every University and college situated along the Western Ghats region but also in libraries of Agriculture and Forest Departments and environment groups concerned with the ecology of the Western Ghats.

1. Beddome, R. H., *Madras J. Lit. Sci. (N.S.)*, 1858, **3**, 169–202.
2. Bourne, A. G., *Pulney Report*, Located at Library & Archives, Royal Botanic Gardens, Kew, 1915, 73.
3. Fyson, P. F., *The Flora of the Nilgiri and Pulney Hill-Tops*, Madras, 1915, 2 vols.
4. Fyson, P. F., *The Flora of the Nilgiri and Pulney Hill-Tops*, Madras, 1920, 3 vols.

5. Fyson, P. F., *The Flora of the South Indian Hill Stations*, Madras, 1932, 2 vols.
6. Rajendran, S. M. and Aswal, B. S., *J. Non-Timber For. Prod.*, 1997, **4**, 160–164.
7. Matthew, K. M., *Illustrations on the Flora of the Palni Hills, South India*, Rapinat Herbarium, Tiruchirapalli, 1996.
8. Matthew, K. M., *Supplement to Illustrations on the Flora of the Palni Hills, South India*, Rapinat Herbarium, Tiruchirapalli, 1998.

L. D'SOUZA

Laboratory of Applied Biology,  
St. Aloysius College,  
Mangalore 575 003, India

## PERSONAL NEWS

### K. Narahari Rao: An obituary

K. Narahari Rao, a distinguished spectroscopist of the Ohio State University, Columbus, passed away on 5 May 2000. He was born on 5 September 1921 in Kovvur, Andhra Pradesh. He graduated from the Andhra University obtaining his B Sc (Honours) in 1941 and M Sc (Physics) in 1942. Subsequently, he joined the Solar Physics Laboratory of Kodaikanal Observatory (1942–46) and carried out research work on high resolution spectra of the diatomic phosphorous molecule and nuclear spin. He also undertook studies of intensities of molecular spectral lines in order to determine the physical conditions in the Solar Reversing Layer. In 1946, he secured a Research Fellowship to work with Gerhard Herzberg at the Yerkes Observatory of the University of Chicago – a unique opportunity to be one of the two graduate students ever registered for a Ph D with the Nobel Laureate. Herzberg was then setting up the spectroscopy laboratory to study molecules of interest to astronomy and, in particular, the various forbidden transitions. Narahari Rao undertook the study of the spectrum of CO lying below 1.2 microns. He used an absorption path length equivalent to 800 m at atmospheric pressure to demonstrate that the rotation–vibration transitions of CO bands could be used as wavelength

standards in the infrared. This was indeed the forerunner for his later work on the wavelength standards in the infrared. In 1949 he earned his Ph D and returned to India to work at the National Physical Laboratory for two years



(1951–52). Subsequently he returned to USA and during the following eight years (1952–60) held Research Associateships at Duke University and Universities of Tennessee and Ohio State. He joined the Physics faculty of the Ohio State University (OSU) as Associate

Professor in 1960 and was promoted to full Professor in 1963. He became Professor Emeritus in 1993.

In Smith Physics Laboratory of OSU, Rao developed first-rate facilities for high-resolution spectroscopy. He made pioneering contributions, initiated and relentlessly pursued timely research in diverse areas of infrared spectroscopy by repeatedly addressing the question of infrared wave number standards. His pioneering research on these standards and on molecular spectroscopy of carbon monoxide and its ion and acetylene are highly commendable because they set the pace for numerous subsequent researches in the field. He made major advances in the understanding of the effects of perturbations in the infrared spectrum of ammonia. The carbon rod furnace as a source of infrared radiation first developed by Rao and his associates in 1963 was adopted by many laboratories worldwide for high-resolution spectroscopic work and was often referred to as the *Rao Source*.

The advent of molecular lasers and, in particular, the technological advances with tunable diode lasers made it possible to achieve Doppler-limited spectral resolution in the infrared. Rao and his collaborators demonstrated this in their classic publications on acetylene and ozone. Such was Rao's keenness to ex-