
Digital Remote Sensing. Prithvish Nag and M. Kudrat. Concept Publishing Company, New Delhi. 1998. ISBN 81-7022-725-9. Price: Rs 250.

Considering the number of satellites India has launched, and the number of people we have working with remotely sensed data, it feels good to see a book that purports to provide 'a comprehensive picture of the scenario of remote sensing in India'. *Digital Remote Sensing*, by Prithvish Nag and M. Kudrat, has the commendable objective of providing an inexpensive introduction to the art of digital remote sensing, within an India-specific context. In that sense, it fills a niche that has been so far empty. The book begins with an account of electromagnetic radiation, followed by a description of the major imaging platforms currently available, details of hardware and software, visual and digital classification procedures. This is followed by a brief introduction to Geographical Information Systems (very useful, considering the increasing tendency for GIS and remote sensing to be coupled), and finally an overview of the applications of remote sensing, mainly within India.

Minor grammatical and other errors abound. For instance, there is a peculiar sentence on p. 29, paragraph 2 stating, 'With long experience in handling remote sensing data, it will be apparent that in Landsat TM or IRS-1A, band 1 shows higher digital counts than that expected'. I find it difficult to figure out what exactly the authors mean... . Again, the expansion of SPOT which the authors provide is 'System Probeteir d'observation de la Terra' (p. 64), which does not match with that by Lillesand and Kiefer¹ (Systeme Pour l'Observation de la Terre). One only wishes a little more care had been taken by the publishers to avoid such errors, and that they had used more durable binding (my copy is starting to come apart at the seams, after a few days of use).

The professed aim of this book is to target 'application scientists' within India, who wish to work on remotely sensed data. For this purpose, it is perhaps adequate. One does wish though, that the authors had attempted a more in-depth discussion of certain topics. To cite a few examples, no mention is made

of the IKONOS series of satellites, while discussing future trends in satellite technology. This might be due to the fact that the book was published in 1998, but only serves to highlight the need for constant updating in a field of this sort.

There is a detailed chapter on visual interpretation. Considering that a large number of applications of remote sensing in India are still carried out using visual interpretation, this is a good idea. However, this chapter lacks enough detail on the elements of visual classification. One especially notes the absence of practical advice, considering the years of experience brought to the book by both authors. For instance, one could have informed readers that a useful technique to differentiate between forests and plantations, is to look for the comparative uniformity of texture that is observed within uniform-age plantations. Similar lacunae exist in other chapters. For example, the chapter on band combinations, though otherwise very detailed, lacks detailed discussion of which band combinations might be useful for various objectives, in India. Although some possibilities are mentioned, one does not get the full benefit of the authors' expertise, and is left with the impression of a literature summary, rather than a critical review. The section on classification techniques is however comprehensive and adequate, both in coverage of theoretical issues and discussion of practical issues.

I would recommend this book however, for persons interested in information on remote sensing applications in India, and Indian students of remote sensing and GIS. Although in its coverage it could perhaps have been more extensive, this book was not written with the objective of providing a textbook. The authors clearly state in the preface, that their main aim was to provide a comprehensive account of remote sensing application activities in India. This goal is fulfilled particularly well by the chapters on hardware and software options, application trends and the appendices. This is a useful book for the remote sensing practitioner who wishes to acquire a reference book on Indian remote sensing activities, and for the student who wishes to own an inexpensive introductory textbook.

1. Lillesand, J. M. and Kiefer, R. W., *Remote Sensing and Image Interpretation*, John Wiley, New York, 1994, 3rd edn.

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Conversion Coatings – A Reference for Phosphating, Chromating and Anodizing Processes. C. Rajagopal and K. I. Vasu. Tata McGraw-Hill Publishing Company Ltd, New Delhi. 2000. 382 pp. Price: Rs 425.

This book is written by well-known experts, C. Rajagopal, former senior scientist of CECRI Madras Unit, who is currently an experienced practising consultant and K. I. Vasu, former Director of CECRI, Karaikudi, a distinguished scientist and educationist. The authors have profound experience in both fundamental and applied research, which is reflected in the structure and contents of this book. The book is divided into three parts. Part one covers phosphate coatings; Part two deals with oxide and chromate coatings; Part three gives a detailed account on anodizing. There are 39 chapters in total, giving a full picture of the status quo of the technology of conversion coatings. Fundamental aspects such as the formation mechanism, characteristic properties, methods of evaluation and quality control testing of phosphate coatings, oxide and chromate coatings, and anodizing are covered well. Besides, plant requirements, equipment and accessories, pollution control, effluent treatment, waste disposal methods, safety precautions and trouble shooting are also addressed for the benefit of the metal finishing industries. A list of national and international standards dealing with phosphate and chromate coatings is also compiled for the benefit of the reader.

The chapter/section titles are chosen with care, and the presentation of tables and figures is excellent. There is an

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.

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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 Beddome¹ and Bourne², 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^{3–5} 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 families⁶. 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^{7,8}. 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.