

(MSSRF), to provide locale and time-specific information and knowledge to help empower the resource-poor farming, landless and fishing communities in a few villages in Puducherry on the west coast of India. This innovation-based approach was the first of its kind to be initiated in the world and was based on an analysis which revealed that farmer-to-farmer contact was an important mode of obtaining necessary and timely information on seeds, pests, disease management, marketing, etc., especially in the absence of an effective agricultural extension service. The VRCs are in collaboration with the Indian Space Research Organisation and are provided with internet, GSM-based public address system, and satellite-based radio and video conferencing facilities. More recently, Fisher Friend Mobile Application (FFMA) is providing critical data related to timely information on potential zones for fishing, ocean state forecast, etc. with the intention of enhancing the fish catch and to forewarn the fisherman on cyclonic storms and other such natural disaster events. MSSRF's revised versions of FFMA in Android platform have included additional features such as GPS interface, disaster alerts and international boundary alerts to advise Indian fisherman against unknowingly straying into territorial waters of the neighbouring countries. However, the authors of this chapter do not mention the pioneering works done by MSSRF in empowering the many marginal farming and fishing communities. Since technology without specific goals and appropriate content serves no purpose, MSSRF has emphasized on content development to provide sound, relevant and timely advice to those who need the same. Further, MSSRF has used modern ICT to strengthen the links between the laboratories and the farmers.

The statement (p. 235 in the book) stating 'Agriculture has moved on, subsistence farming is at least aspirationally a memory of the past and high value products and processed goods are increasingly displacing the staple commodities of the old. Rising rural wages and rising farmer's demands for technology and services and private sector readily responds', needs a reality check.

This book underscores a corporate approach to the production of food preferred by the 'affluent' Indian population by 2040. This is also evident from the strong recommendation made for the

inclusion of genetically modified (GM) crops in Indian agriculture. At present, none of the GM crops grown around the world enhance the intrinsic yield of crops. Moreover, the pesticides used for GM crops (*Bt* and *Ht*) exert selection pressure leading to development of resistance in pests. It is also clouded by royalty issues. Above all, the adverse effects of GM crops to health and the environment are now clearly evident.

In conclusion, this book largely ignores the current social, environmental and economic realities of India and paints a rather illusionary picture of India turning to be an affluent country by 2040. The burgeoning population of India, degradation of the ecological foundations in agriculture, unsustainable lifestyle of the people and climate change suggest otherwise.

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Turn Left at Orion. Guy Consolmagno and Dan M. Davis. Cambridge University Press, The Edinburgh Building, Cambridge, CB2 8RU, UK. 2011. 256 pp. Price: US\$ 28.99, Euro 22.99.

You cannot judge a book by its cover, it is said; but sometimes, you can judge a book by its title. The intriguing title, which continues 'Hundreds of night sky objects to see in a home telescope – and how to find them' is one of the best-selling books in amateur astronomy and is so, for a good reason.

Guy Consolmagno explains in the introduction to the first edition (1989), reprinted in this edition as well, that after Dan Davis had introduced him to the fascinating subject of astronomy just before he, Guy, went to Africa, '...it occurred to me that all of the books in the world weren't as good as having a friend next to you to point out what to look for, and how to look for it. Unfortunately, I couldn't take Dan back to Africa with me'. He adds that many books tend to get technical with details of coordinates and that most stars are 'pretty boring to look at in a small telescope. You have to know where to look, to find the interesting double stars and variables, or the nebulae and clusters that are fun to see in a small telescope but invisible to the naked eye'. It is for the casual observers who want to enjoy the beauty of the night sky without the technical details, that Consolmagno and Davis decided to write this book.

To do this, the authors present some basic chapters on the telescope which are followed by chapters on the moon, the planets, the seasonal skies and finally, the northern and southern skies. The sections on the telescope are exceptionally well written; a small telescope, by the way, as they define it, is 2.4–4 inch main lens or mirror, or a Dobsonian with an aperture of 8–10 inch. The authors also state 'there are no bad telescopes. No matter how inexpensive or unimpressive your instrument is, it is almost certainly better than what Galileo had to work with'. Galileo used a telescope with a 1 inch aperture – and changed our thinking forever.

The moon is, of course, is a fascinating object, be it for astronomers, lovers or poets and it is the one object that can be seen even from our light-polluted and industrially polluted skies. This section follows, night after night, the various features that can be seen with the home telescope. Details of which direction to look in and what constellation the planet is in, are provided for Mercury, Venus, Mars, Jupiter, Saturn – up to 2024! Clearly, this book is going to remain useful to me and others for many more years to come.

The bulk of the book, of course, deals with stars, constellations and related objects. Each object is rated on how impressive it looks – in a small telescope, a Dob and a pair of binoculars, because each of these instruments will show the

objects in a different manner. Obviously, an object such as M42, the Orion nebula rates highly with all of the three instruments. Every seasonal object is illustrated with line diagrams of what the heavenly body would look like with a finderscope as well as with a small telescope and a Dob. The book tells you exactly what to expect and how to see it. The potential for error is great in such a book and except for one printer's devil (the section on the open clusters M36, M37 and M38 has a statement that '(M38)... is between M36 and M38 in size', where it should clearly be '...between M36 and M37 in size'.

As one would expect, most of the book is on practical astronomy and on how to locate and identify objects, occasional boxes provide the much needed theory. For instance, those who are unclear about the difference between diffuse nebulae and 'planetary' nebulae would benefit from reading the boxes on pages 55 and 99 respectively.

Who should possess this book? Just about every amateur astronomer, whether a novice or one with considerable observational experience. Of course, the novice in amateur astronomy would still need handholding while observing heavenly bodies. But there is a deep satisfaction, in amateur astronomy, as indeed in many other areas of life, to do something on one's own – to locate the Andromeda galaxy for the first time, to identify the craters Aristillus, Archimedes and Autolycus in the Mare Imbrium on the moon – these are delights that are hard to match. The committed amateur, too, may know much of this – but there is abundant information here that will benefit both groups, rank amateurs as well as committed amateurs, e.g. information on further dates and places of eclipses.

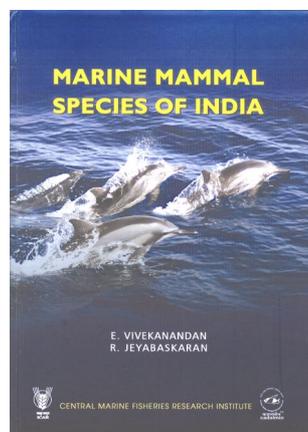
With Comet ISON, which potentially promises to be the comet of the century, on the way, I wondered if comets were mentioned in the book; they were not – but the authors explain that comet sighting is uncommon. Of course, comets are best viewed in binoculars, rather than by telescopes. However, artificial satellites do get an honourable mention at the very end of the book and the authors, using some technical jargon for a change, present a map which can help locate a geostationary satellite.

Finally, I cannot resist this: I find it delicious and droll that the first author of the book is an astronomer at the Vatican.

Readers will, of course, be aware that 400 years ago, it was this very church that had made Galileo publicly recant his belief that the earth was not the centre of the solar system. The acknowledgement by the Pope that the church had erred then was made only in 1992 – three years after the release of the first edition of this book!

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Marine Mammal Species of India. E. Vivekanandan and R. Jeyabaskaran. Central Marine Fisheries Research Institute (ICAR), Kochi. 2012. 228 pp. Price: Rs 750.

This book is a source of collective information on the marine mammal species found in the Indian seas. It is the outcome of a nine-year study (2003–2011) funded by the Centre for Marine Living Resources and Ecology, Ministry of Earth Sciences, Government of India, and the Central Marine Fisheries Institute, Kochi, Kerala.

The book starts with a brief introduction on the order Cetacea being the most diverse, having evolved from land-dwelling ancestors around 50–60 million years ago. More information regarding the evolution of cetaceans could have been provided by the authors. Cetaceans originated about 50 million years ago in South Asia. Fossils of an ancestor of the cetaceans, *Indohyus* were discovered from a 50 m thick bone bed from the

middle Eocene at Sindkhatudi in Kalkot, Kashmir¹. Stable isotope data indicate that *Indohyus* spent most of its time in water coming to land only to feed on vegetation or invertebrates found on the shore. Many palaeontological records support the theory of cetaceans originating from an *Indohyus*-like ancestor that later evolved to a more aquatic lifestyle due to change in diet. Over time, modern-day cetaceans have evolved from their ancestors with many adaptations specialized to suit their aquatic lifestyle¹. Out of the 130 species of marine mammals reported from all over the world, stranding and sighting records show that the Indian seas are a habitat of 25 species of cetaceans and one species of sirenian, and this book provides information about the 25 species of cetaceans. Five species belong to the sub-order Mysticeti (Baleen or toothless whales) and the rest 20 belong to sub-order Odontoceti (toothed whales).

Chapters 2–4 deal with the methodology used to conduct the survey, information on the cetacean species and suggestions on designing and conducting marine mammal surveys. Chapter 2 deals with the survey methodology. The survey was done in the exclusive economic zones (EEZs) and the contiguous seas within the Indian territory. A major part of the 7500 km of the country's coastline falls under the 2,305,143 sq. km of the EEZ. This survey covered northeastern Arabian Sea, southeastern Arabian Sea, northern Bay of Bengal, southern Bay of Bengal, Andaman Sea and the southern Sri Lanka Sea. The data were collected by conducting single-observer surveys on an oceanographic research vessel. However, the surveys were not systematically planned due to logistic constraints. An observer was positioned at a height of 17 m above sea level and the area was scanned in a 180° arc with the naked eye and interspersed with scans using binoculars for an average of 8 h/day. The cetaceans that were spotted were identified to lowest taxonomic level possible and were compared with the photographs and morphological identifications available. Out of a total of 1068 days on which surveys were conducted, cetaceans were spotted on 430 days. A record of 626 sightings comprising 8674 individuals was made with 65% of the sightings in oceanic waters (>200 m depth) and the remaining 35% on the continental shelf (<200 m depth). High-