

You may be surprised that, given the entire Universe to choose from, of the 100 selected destinations 53 are within the Solar System and eight of those are on the Moon. Each destination is given a page or double-page spread dominated by images. To cover the 100 objects or locations in 165 admittedly-large pages, the treatment of each must necessarily be brief, but I would say not superficial, and to some extent this brevity is compensated by the glorious images; they are indeed inspiring, interesting, and beautiful. The book is aimed at the older child, late pre-teens or early teens, and it is laudable that such an inspiring book exists for that age group. They have the ability and skills to look at other information sources and this book is the perfect stimulus.

So in spite of my prejudiced misgivings about a book of lists, in this case I find myself a convert. This is a very fine book; it is inspirational without dumbing down; there are no silly analogies, and everything is well explained — and I mean everything: I could not find any significant astrophysical destinations that were not covered — and it is bang up to date. There are a few gaps for things that are concepts rather than actual locations or destinations — gravitational waves, and the very early Universe, for example — but within the parameters laid out in the introduction this book more than achieves its aims. It is quite an astonishing *tour de force* that so much is covered so clearly and so beautifully illustrated. The images are wonderful, and the two pages of photo credits shows how well they have been researched, which together with the four-page detailed index and the already-mentioned glossary make this a wonderful introduction to the wonders of the Universe. At £25 for a large-format book it is also rather good value. — BARRY KENT.

Patrick Moore's Yearbook of Astronomy 2013, edited by P. Moore & J. Mason (Macmillan, London), 2012. Pp. 416, 22.5 × 14 cm. Price £20 (hardbound, ISBN 978 0 230 76750 8).

Patrick Moore's Yearbook for 2013 needs no justification, and almost no description. With 50 previous volumes as a testimony, the series has gained a steady and well-deserved reputation as a 'must' for all serious observers, particularly amateurs. Whenever Christmas comes round, the *Yearbook* slides to the fore in the market of book purchases. What makes it so popular?

The book is printed on quite thick paper, so its fairly modest 400-plus pages make a book that would not conveniently fit into the pocket. In parallel with other 'Yearbooks', this one includes star charts, moon tables, and schedules of phenomena such as eclipses and occultations, plus descriptions or explanations of planets, comets, meteors, minor planets, and all the rest of the inhabitants of our local space. Again, as in other such compilations, the events are also summarized for each month. There's nothing special in those topics, and yet P.M.'s 'Monthly Notes' are different because each one includes some historical or anecdotal story that adds vital zest to the factual matter.

Arguably the most readable section of the book is its 'Articles' section. Each of the nine biographical histories, technical descriptions, or scientific stories is a well-researched expert account, yet their style is not cramped by the all-too-common need in journals to reduce the length; they seem able to take as much space as they need, and in consequence they are the more pleasant to read. Styles vary, of course; more than one author prefers to use semi-colons where commas are actually required, and it would have been superb to have some of the illustrations in colour, had that been an option. Selection was sometimes guided by an anniversary date, such as the 400th birthday of Hevelius; one chapter is a reprint of a past article that proved popular at the time. But whether

the topic is digital meteor imaging, a space asteroid mission, Solar System science, the planning and development of *ALMA*, explaining the wonders of the aurora, or reconstructing strategic events in the lives of historical figures, and however varied and vivid the contents, it's the personal touches that really bring them to life and give them the edge — the vicissitudes of a pioneer, meshed with the ups and downs of personal life, contribute equally to achievements and failures both in the past and in the present. Astronomers are, after all, only human.

It was while the book was still on my desk that its dust-jacket sadly became out of date: Sir Patrick Moore is no longer "the world's best-known living astronomer". Other obituaries will be written, but in a very real sense one can recall the epitaph in St. Paul's Cathedral, London, to Sir Christopher Wren: *If you want a memorial, look around you.* This book is Sir Patrick Moore, full of knowledge and information yet uniquely sprinkled with humour, wit and inspiration. The *Yearbook* series is exemplary of public outreach. Long may it continue, and may its prime editor and originator rest in peace in the sound knowledge of a job very well done. — ELIZABETH GRIFFIN.

The Cambridge Photographic Moon Atlas, by Alan Chu, Wolfgang Paech & Mario Weigand, translated by Storm Dunlop (Cambridge University Press), 2012. Pp. 191, 34 × 25 cm. Price £35/\$55 (hardbound, ISBN 978 1 107 01973 7).

From cover to cover, this book is full of the most amazing non-spacecraft images of the Moon you will have the privilege to look at for some time to come. A few images are from NASA, but it is hard to tell which are Earth-based and which are from a space-probe camera. This book definitely is not a collection of old blurry or pixelated CCD images of the Moon. It is the work of master astrophotographers Alan Chu from Hong Kong and Mario Weigand from Germany, and author and amateur astronomer Wolfgang Paech of Germany, and was translated from its original 2010 German publication by Storm Dunlop.

The book is divided into three main parts. The first part contains information about the structure of the Moon, and gives advice on how to use the book. The main part follows with 180 pages of lunar images and descriptive text divided into 68 sections on the nearside features, with the last section (number 69) covering the farside. The third part of the book consists of a brief glossary, an index to the features covered in the book, photo credits, and finally suggestions for further reading about the Moon.

The book begins by explaining the structure of the Moon. The authors cover the selenological ages and periods of the Moon and its chemical makeup. They compare the black basalts of the maria with the white anorthositic rocks of the highlands. They go on to give in one paragraph the theory of the megabasin impact that may be the cause of there being such a difference between the nearside and the farside. The nearside is covered with the dark maria areas and the farside lacks these lava-flooded areas. The different types of surface features with images showing these features, is discussed, as is the evolution of a crater from its initial impact to the modifications it goes through by the erosion caused by impacts of smaller bodies.

As part of this first section, the authors also cover the basics of observing the Moon, such as the selenographic coordinate system, the height of elevated features, colongitude, and librations. Then they briefly discuss telescopes to use for lunar observation. The best part of this section is the coverage that they give to imaging the Moon. They talk about the types of CCD sensors, and which

colour of filters work best for digital images of the Moon. Since this book is mainly an atlas of electronic images, the authors devote over a full page with instructions on how to take and then process your lunar images to get as sharp a final version of the image as possible.

The heart of this atlas is of course the 300-plus high-resolution images of the Moon. In most cases, they have used four images of the same area in order to show it under different lunation phases. This part of the book includes 68 areas plus the last section covering the far side. Some features are covered on two pages and some on four pages. The authors do a great job in clearly identifying lunar features with thin white lines for the placement of the feature names.

One minor thing that annoys me is when a certain incorrect phrase is repeated from one Moon guide to another. In this case, the authors have repeated the incorrect phrase that under a high Sun, the mare wrinkle ridges become “invisible”. Saying that a wrinkle ridge is “invisible” would tend to indicate that you would see a strip of nothingness on the mare surface where the “invisible” wrinkle ridge runs. They do not become “invisible” — you can still see them — it’s just that under a high Sun, they do not cast a shadow and are therefore not recognizable as an elevated feature.

The only problem that I see with this book is that they use gray dots with a white number in the dot to identify in the images the features covered in the text. This arrangement works fine for most of the features and keeps the images from being covered with feature names, but when they place the number/dot near a feature with a high albedo (bright), the dot almost disappears and can be a challenge to locate. Since a few of the sections are on four pages, the numbered feature may be discussed on a following page instead of the page with the dot. This can be confusing as you hunt around the first page only to discover that the descriptive text is on the following page.

Overall this photographic atlas of the Moon should be an addition to all lunar observers’ libraries. The book is not designed to serve as an at-the-telescope guide, but for cloudy-night reference. I certainly would not want to take it out into the damp night air and watch the dew destroy it. — ROBERT GARRINCLE.

Total Addiction: The Life of an Eclipse Chaser, by K. Russo (Springer, Heidelberg), 2012. Pp. 193, 23.5 × 15.5 cm. Price £16.95/\$24.95/€24.95 (paperback; ISBN 978 3 642 30480 4).

When I was first asked to review this book, I quickly thumbed through and thought “Oh no, another book that makes eclipse chasers look like the most nerdy and eccentric beings on this planet”, which is the impression conveyed by some television programmes. But I was pleasantly surprised as I started to read that this was not going to be the case.

In the first few chapters, the book covers the author’s personal introduction to eclipse chasing and the excitement of sharing these events with others. There are contributions from other eclipse chasers and it is a very detailed account of what these eclipse chasers-experience, how they are motivated, and the different emotions and reactions they go through when observing under the shadow of totality. The book also briefly explains the science of how eclipses occur, although this was not the objective of the book. The author also carried out a survey of the eclipse-chasing fraternity, and she discusses the resulting breakdown and analysis of these results.

There are a number of detailed interviews that have been conducted, from beginners who didn’t know what to expect from seeing a total eclipse to people

who have spent a large part of their lives viewing eclipses all over the world. Having been to many total eclipses over the years, I found myself able to relate to their stories and can well understand how difficult it is to explain the magic of totality without appearing a little odd to the outside world. But the book does try to explain that if you are in a position to enjoy travelling to unusual places at unlikely times of the year then it can be very rewarding and can become addictive, like any other hobby.

I am not sure that this book makes light reading, since it goes into some depth about the psychological aspect of people’s perspective on total eclipses and therefore can get a little repetitive; one can also get a little bogged down with the statistics of eclipses, which may not suit everyone. The interviews are very informative and perhaps give an insight to beginners as to what to expect when seeing totality, which should not be confused with seeing a partial eclipse. Totality is a far more enlightening experience. There is also a chapter on locations and helpful tips in getting started for future total eclipses up to 2020. — JEAN FELLEES.

Stars: A Very Short Introduction, by A. King (Oxford University Press), 2012. Pp. 120, 17.5 × 11 cm. Price £7.99 (paperback; ISBN 978 0 19 960292 6).

According to the publisher, *Very Short Introductions*, which started in 1995, are for “anyone wanting a stimulating and accessible way into a new subject”. It is perhaps a little surprising that a subject as popular as stellar astronomy has not already been featured, although ‘Galaxies’ and ‘Cosmology’ have [as has ‘Planets’ — see 134, 256, 2010 — Ed.]. What we find in this new offering is not the regular presentation of popular astronomy but a serious, formula-free description of stellar structure and evolution. There is no mention of constellations or telescopes, but if the single word ‘Stars’ in the title was slightly misleading it was as much the publisher’s fault as the author’s; an *Introduction* to ‘The night sky’ (or some such) may still be to come.

King’s presentation of the physics of stars is lucid and logical, its depth adequate for the intended readership. It is always tricky to avoid over-simplifying the style when simplifying the language in which a topic is couched, and he almost succeeds — though his sentences do tend to avoid complex structures as they search for neat ways to explain complex concepts in non-complex terms. His theme is the construction, evolution, and ultimate fates of stars, and he traces the mathematical physics non-mathematically with enviable skill and command. Commenting with the history of how astrophysicists was born, and defining just the very basic concepts such as luminosity, Doppler shift, and parallax as needed, he manages to take the reader into the realms of neutron stars, black holes, and the very highest energies by logical arguments rather than hard mathematical proofs. Not until the end does he tackle star formation, but because of the associated ascending computational problems it fits rather well when done in that order. His account is clear, concise, and convincing.

He does not do a quite perfect job, however. As the subject matter gets more involved and enthusiast mounts, the style degrades towards the characteristics of so much of today’s scientific writing that pepper sentences with “this” and starts them with “So”. A few Americanisms dot the pages, even, though both author and publisher are British, and there is some confusion of commas in places. I noticed only one typo, though in striving to keep the language of the science at the level of speech rather than figures his explanation of 10^{16} is off in