

Vol. 22 Issue 1
Winter 2021
20 March 2021
12:49am ADT

H O R I Z O N



LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
New Brunswick Centre du Nouveau-Brunswick
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



Welcome to the RASC-NB quarterly Newsletter.

Message from the Secretary – by David Penney

Good day everyone! I hope that this newsletter finds you in good health and spirits; if not, that it is at least a little distracting, supportive and encourages you to get outside when you can and look up at the stars and sky. Do not use it as an excuse to look at the sun without proper eye protection! 😊

First, I want to thank Curt Nason for taking care of the newsletter (and the secretary duties) as part of the RASC-NB council. Over the past few months, I have had the chance to get to know some of the responsibilities of the secretary position and I want to both thank Curt for his time and dedication to the position *and* to encourage others to volunteer when they get the chance. Spreading the work among many hands is easier than doing it yourself!

Second, I want to thank everyone for their submissions! If you have comments, concerns, or submissions of your own inspiration, please let me know. I look forward to putting the next one together to publish on the Summer Solstice (21 June 2021) with a submission cut off date on 7 June. If you have astronomy photos, stories, observing reports or book reviews – please pass them along.

Here is the upcoming meeting schedule for the RASC-NB chapter:

- 20 March - with business meeting in the morning, presentation meeting in the afternoon.
- 17 April - presentation meeting in the afternoon.
- 22 May - with business meeting, presentation meeting in the afternoon.
- 26 June - possible business meeting dependent on need, presentation meeting in the afternoon.
- 18 September - with business meeting in the morning, presentation meeting in the afternoon.
- 16 October - Annual General Meeting - business meeting in the morning, presentations in afternoon.
- 20 November - presentations in the afternoon.

And remember: Keep looking up!



RASC NB Outreach Events and Handouts

Year	# of Events	People at Events	Live Feed	Youth	Star Finder English	Star Finder French	Moon Guides English	Moon Guides French	Voln Hours
2014	104	4843			1716	241	1378	199	
2015	114	7262			2106	244	2568	156	
2016	219	9498			1984	115	2290	87	988
2017	248	9951	8441		2276	162	2262	131	1937
2018	187	7289	37,992	1300	1788	170	1635	79	1355
2019	240	7036	46,675	2997	1320	216	1520	213	1950
2020	171	1859	161,688	954	817	22	636	125	1079
2021	16	7	2499	0	0	0	0	0	190

Types of Outreach Events

Year	Presentation	Night Observing	Day Observing	Youth Group	School Talks	Exhibition	Observ./ Planet'm
2015	23	21	20	17	12	8	3
2015	22	33	23	7	15	13	1
2016	31	55	39	19	54	11	10
2017	61	89	22	19	50	6	1
2018	50	80	13	18	20	5	1
2019	73	94	10	22	36	5	0
2020	86	43	5	8	29	0	0
2021	10	6	0	0	0	0	0

President/Président

June MacDonald

1st Vice-President/Président

Chris Curwin

2nd Vice-President/Président

Paul Owen

Secretary/Secrétaire

David Penney

Treasurer/Trésorier

Emma MacPhee

National Council Representative

June MacDonald (Acting)

Councillors / Conseillers

Mary King

Daniel LeBlanc

Detlef Rudolph

Chris Weadick

Newsletter Editor

David Penney

Website

Emile Cormier &

Trevor Johnson

LP Abatement

Chris Weadick

Star Party-Events

Paul Owen

Outreach

Curt Nason

Social Media

Gerry Allain

Equipment

Chris Weadick

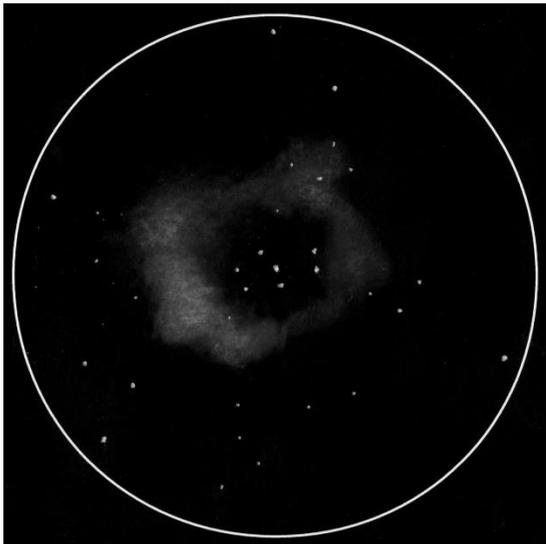
Library

Ted Dunphy



NGC869

NGC869: One of the Double Clusters in constellation Perseus. I think I captured a reasonable likeness of the "cowboy" asterism at the center. To see the cowboy, look for the bright star at the centre. That's the cowboy's eye (he's a cyclops). Above the eye (tilted clockwise a bit) is the cowboy's hat. Below the eye are two outstretched arms like in a gunslinger pose. Below those are the two legs, also in a wide gunslinger stance. It looks more like a cowboy through a telescope than it does in my sketch.



NGC2237

NGC2237: The Rosette Nebula in constellation Monoceros. I used a rich-field telescope for this, a 6" f/4.8 Mak-Newt with a 30mm eyepiece, resulting in a wide 3.4° field of view. I had also used an OIII filter.

These sketches of open cluster NGC869 and NGC2237, the Rosette Nebula were rendered in beautiful detail by Emile Cormier. Both were sketched at the eyepiece using graphite on white paper. He scanned them and reversed the colours so that they appear more natural.



The celestial highlight for spring in New Brunswick, barring a surprise naked-eye daylight comet, is a partial solar eclipse beginning at sunrise on June 10. Spring begins at 06:37 on March 20. International Astronomy Week runs May 10-16, with Astronomy Day on May 15.

After a close conjunction with Jupiter and reaching greatest western elongation in early March, **Mercury** moves sunward and dips below the already shallow ecliptic. By the first of spring it has brightened slightly but it will offer only peekaboo glances through the murky horizon sky. Mercury reaches superior conjunction on April 18 and offers its best evening viewing for 2021 in early May, dimming before it reaches greatest eastern elongation on May 17. It has a close conjunction with Venus on May 28 but optical aid will be needed to see the much dimmer planet. Inferior conjunction occurs on June 11.

Venus is at superior conjunction on March 26, claiming the early evening sky by early May. On June 11 it lies within a binocular field to the upper left of the slim crescent Moon. **Mars** spends the season dimming slowly and wandering eastward through Taurus and Gemini. Along the way it matches colours with Betelgeuse and Aldebaran in March, passes near open clusters NGC 1746 on April 1 and M35 on April 25-26, and line dances with Castor and Pollux on June 6-7.

Jupiter puts distance between itself and both Saturn to its west and the Sun to its east, moving through Capricornus and crossing into Aquarius in late April. This year Jupiter's equator is more edge-on to our view than in recent years, resulting in transit and occultation events for Callisto, the most distant of its four visible moons. Another bonus of this hexennial alignment is mutual moon events, where two moons can appear to merge or a moon transits the shadow of another. Mutual events will be highlighted in bold-italics on the monthly What's Up calendars.

Uranus sets before 23:00 on the first of spring, and it is in solar conjunction on April 30. **Neptune** is in solar conjunction on March 10. Dwarf planet **Ceres** moves between Cetus and Pisces over the spring and is not well placed for observing. Minor planet **(4) Vesta** reaches opposition and peak brightness at magnitude 6 on March 5, spending the spring within Leo. See the Heavens Above website for daily location maps.

Comet **C/2020 R4 ATLAS** has recently rounded perihelion and is our best hope for spring comet viewing. It passes through Aquila in March and the first half of April, picking up speed across the sky as it makes its closest approach to Earth between Hercules and Corona Borealis on April 23, possibly brightening to magnitude 9. Comet **7P/Pons-Winnecke** could reach magnitude 11 passing through Aquarius in late May and early June.



The **Lyrid** meteor shower peaks on the morning of April 22, with the waxing gibbous Moon setting around 04:30 and the radiant above the horizon all night. The **Eta Aquariid** shower peaks around midnight on the morning of May 6, with the waning crescent Moon rising at 04:30 and the radiant rising an hour or two sooner. Look for the zodiacal light in the west 45-90 minutes after sunset, during the first two weeks of March and March 30 to April 13.

New **Moon** dates for spring are Saturday, March 13 – a great weekend for the Messier Marathon – and April 11, May 11, and June 10. The Lunar X will be visible on March 20 and May

18. On June 10 in New Brunswick we see a partial solar eclipse that begins around 05:38, just after sunrise. Maximum eclipse, with nearly 75% of the Sun covered, is at 06:36, and it ends at 07:38. With the Moon at apogee two days before, people in northern Ontario, northern Quebec and Baffin Island are treated to an annular eclipse.

Jupiter Moon Observing Challenge. With Jupiter's equator aligned toward us this year I offer an observing challenge to encourage us to get out of the house, perhaps even when we are normally in dreamland. Let us try to observe at least one of each type of moon event for Io, Europa, Ganymede and Callisto: transit ingress and egress, shadow transit, occultation disappearance and reappearance, and eclipse disappearance and reappearance. I have compiled from the RASC Observer's Handbook a spreadsheet and also a table of events occurring between sunset and sunrise, although some of these will be very difficult to see in bright twilight. The table will be posted on the Centre website and the spreadsheet, which can be sorted by date or moon, will be available on request. Note that times between midnight and 01:00 are listed for the day before and the hour 24, the same convention used for the What's Up calendars. For example, an occultation reappearance of Io at 03:46 UT on May 5 in the Observer's Handbook will be listed as 24:46 (ADT) on May 4. Good luck.

Who is this guy with the long name and why has this report anything to do with astronomy and stargazing? I hope this will become apparent as you read on.

Joseph-Bernard was born February 28, 1724 in Toulon, France. His grandfather was a Rear Admiral and his father was a post-captain who died of wounds in action. It followed that Joseph-Bernard would join the Navy which he did in July 1741 at the tender age of 17. While operational in the Mediterranean, he displayed a talent for science and drawing charts. In 1746 he made 2 voyages to map the coast of Acadia to correct errors in existing French charts. His initial voyage had him charting the Baie de Chibouctou (Halifax Harbour) as well as Annapolis Royal. The following spring he was taken prisoner by the English. Eventually he was repatriated and promoted to ensign. However, his talent had him transferred to Paris where the Minister of Defence wanted him to learn astronomy and instruct other naval officers. Two years later he was chosen to go to Ile Royale (Cape Breton) and to survey the shoreline of Acadia.



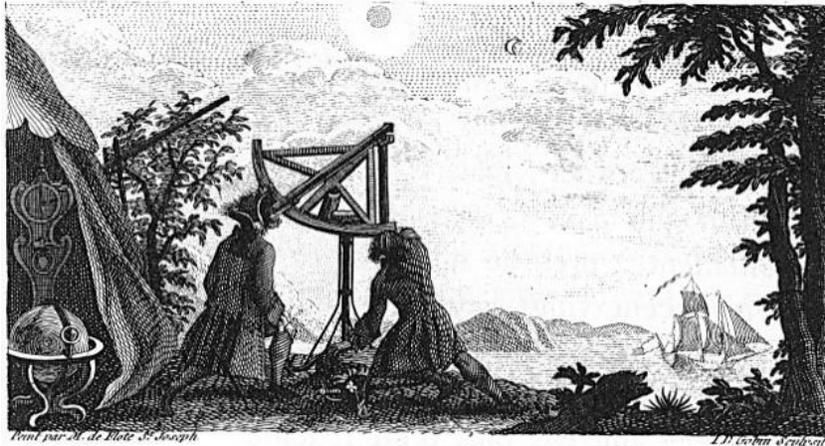
Picture to the right: Joseph Bernard de Chabert de Cogolin, Marquis de Chabert (Credit: Musée National de la Marine, Paris)

He arrived in Louisbourg in August, 1750 and continued to chart the Strait of Canso, the coast of Ile Royale from Guyon Island, southwest of Cape Gabarus and northward beyond Scatarie Island. It was that winter when he had constructed at considerable expense a log cabin observatory on the ramparts of the King's Bastion at Fort Louisbourg. The observatory had windows, doors, locks and board siding. His instruments included eight telescopes. Six were refracting telescopes with focal lengths between 3 and 18 feet. There was a Gregorian reflecting telescope with a focal length of 3 feet as well as an astronomical quadrant for measuring angles. The observatory had a 'seconds' clock, terrestrial globes, maps of the stars and an octant. Despite inclement weather, he and his assistant, Monsieur de Chevalier de Diziers-Guyon, whose particular strength was in geometry, were able to determine the longitude of Louisbourg. This observatory is regarded as the first astronomical observatory built on Canadian soil. It is a fact, however, that Samuel de Champlain would have used astronomical instruments in the early 1600's and the French missionaries (the Jesuits) began to record various astronomical events, eg. comets and eclipses; however, there is no account of an observatory having been constructed such as the one in Ile Royale (Fort Louisbourg). While the observatory has not been reconstructed at Louisbourg, there are display/information boards in the same location on the ramparts as where the observatory was positioned. Also a room representing an office or workroom contains many of the types of telescopes, quadrants, octants, etc. that he would have used in the 1750-1752 period.

In 1751 Joseph-Bernard charted Cape Sable and the southern end of Nova Scotia. He discovered that Nova Scotia was approximately 45-60 miles shorter than was being shown on the maps of the day. He successfully located Sable Island and in August he charted the southern coast of Newfoundland from Cape Ray to Cape Race. In late November 1752, Joseph-Bernard de Chabert returned to France and worked with the Depot de la Marine under its director, Galissoniere. He published his surveys in 1753 under the title *Voyage fait par ordre du roi en 1750 et 1751, dans l'Amerique septentrionale*. Book #1 contained an abridgement of his journal accompanied by charts. The second book is devoted to his astronomical observations.

The 2 books contained the most accurate hydrographic survey of the east coast of Canada ever conducted to that time. The Ministry of Marine considered the work so valuable that they bought 200 copies of it to be used for their navigational needs. In 1754 Joseph Bernard de Chabert was made a Knight of the order of Saint-Louis and was promoted to lieutenant.

He served briefly at sea from 1756-58. He returned to the Depot de la Marine and became a member of the Académie des Sciences where he was a frequent contributor. For example, in 1760 he was instrumental in selecting a site in the south Pacific for the French observation of the transit of Venus across the Sun. Other countries used his data which became one of Joseph Bernard's most important contributions to astronomy.



The above is the Frontispiece illustration from Chabert's 1753 volume. The astronomer and his assistant are using an astronomical quadrant to measure the angular distance between the Sun and Moon. This was done to determine the local time. Also note the clock and globe in the tent.

He spent the 1760s charting the Mediterranean, was promoted to post-captain and 2 years later became deputy head of the Depot de la Marine. In 1776, while the Americans were signing their Declaration of Independence, Chabert was promoted to brigadier of naval forces. After signing the Franco-American alliance, Chabert received command of the ship *Vaillant* in Vice-Admiral Jean-Baptiste-Charles d'Estaing's West India squadron for 2 years from 1778-79. Later he served under Rear-Admiral François-Joseph-Paul de Grasse from 1781-82. On September 5th, 1781 he was seriously injured in battle against 5 ships of the Thomas Graves fleet. He was promoted to rear-admiral in January, 1782 and to vice-admiral in 1792. The French Revolution caused him to leave his homeland until 1802. When he returned to France, he began his last great project – a general sea atlas of the Mediterranean. In the midst of this major undertaking, he was struck blind. At the time of his death on December 1st, 1805 at the age of 81, he had many honours bestowed on him: senior admiral of the French navy, commander of the Order of Saint-Louis, member of the Académie des Sciences, member of the Académie de Marine, member of scientific institutions in Berlin, Stockholm, and Bologna as well as a member of the Royal Society of London.

For those who would like more information on Joseph Bernard de Chabert and his accomplishments, I strongly recommend Dr. Randall Brooks' Report in our RASC Journal, volume 73, No. 6, 1979, pages 333-348; the *DICTIONARY OF CANADIAN BIOGRAPHY*, Volume 5 (1801-1820); and Ken Donavan's paper *The Marquis de Chabert and the Louisbourg Observatory in the 1750s*, *American Neptune*, volume XLIV, #3 (summer) 1984 pp.186-197. Ken Donavan was an historian at Fort Louisbourg and curator of the exhibition on the observatory and Joseph Bernard de Chabert. A special thank-you is extended to Dr. Randall Brooks for his many proofreads of this report.

Astronomy Photos



Left: Tasha Weadick submitted a beautiful picture of a summer sunset – something that I hope we can see again in a few months 😊

“Summer sunset really inspired me to take this picture because the colours reminded me of a rainbow as well as one of her favourite flowers the Florida Sunset Hibiscus flower. Sunset is also the reminder that the night sky is upon us and the stars will soon fill our night sky like the milky way.

The shadow of the Canadian flag is also in the photo which is a nice reminder of how lucky we are to live in such a beautiful country.”



Astro★Anagram

The answer is one astronomical word formed by rearranging the letters of the other word.

Clue: Cepheus' Quads

□□□□□ □□□□□

Submitted by Ted Dunphy

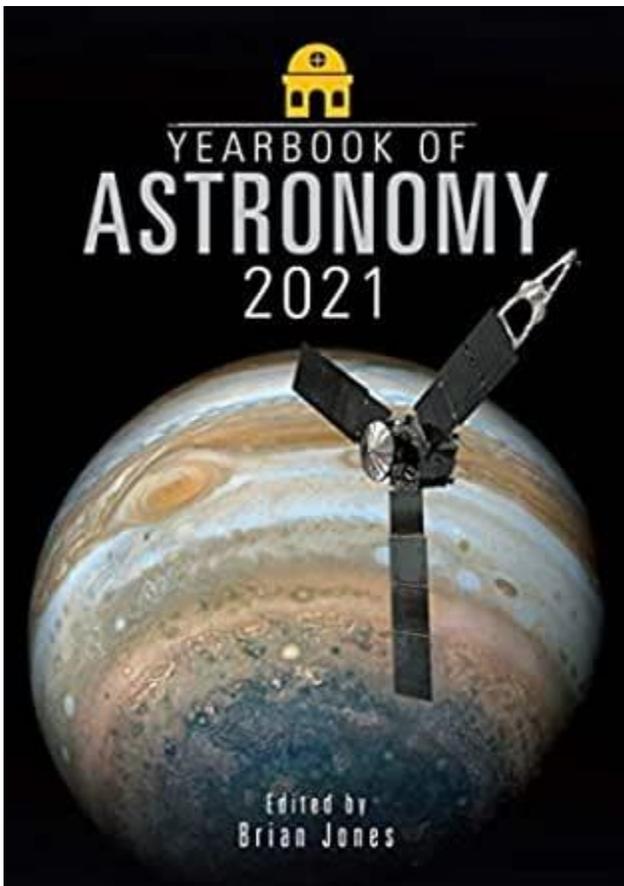
Book Review – by Chris Weadick

“Yearbook Of Astronomy 2021 – Edited by Brian Jones”

I was approached by Jenna Faccenda – Marketing Executive of Casemate Publishers – to review “Yearbook of Astronomy 2021 – Edited by Brian Jones” first published in Great Britain by “White Owl” – ISBN 978 1 52677 187 2. I sometimes hesitate to do book reviews because of my schedule and not being an avid reader. With my job being technical most of my books – work and astronomy - are reference books, rarely something I would read cover to cover. This book captured my interest and was a challenge to put down. I typically do most of my searching online thanks to Google. The Yearbook is written in a manner that will entice you to enjoy while sitting down with a cup of coffee for a quick read yet dynamic enough it will keep your interest even if you have a cloudy evening available.

The email request from Jenna provided the initial insight that caught my interest:

“Maintaining its appealing style and presentation, the Yearbook of Astronomy 2021 (<https://www.casemateipm.com/yearbook-of-astronomy-2021.html>) (White Owl) contains comprehensive jargon-free monthly sky notes and an authoritative set of sky charts to enable backyard astronomers and sky gazers everywhere to plan their viewing of the year’s eclipses, comets, meteor showers and minor planets as well as detailing the phases of the Moon and visibility and locations of the planets throughout the year.



To supplement all this is a variety of entertaining and informative articles, a feature for which the Yearbook of Astronomy is known. In the 2021 edition the reader is presented with articles covering a wide range of topics including Male Family Mentors for Women in Astronomy; Henrietta Swan Leavitt and Her Work; Solar Observing; Obsolete Constellations; Lunar Volcanism; Pages From the Past: Collecting Vintage Astronomy Books; Māori Astronomy in Aotearoa-New Zealand and others.

In addition to the above is the first in a series of articles entitled Mission to Mars: Countdown to Building a Brave New World scheduled to appear in the Yearbook of Astronomy throughout the 2020s. These articles will keep the reader fully up to date with the ongoing investigations, research and preparations that are already underway, as well as those in the planning phase, all of which are geared towards sending a manned mission to Mars at or around the end of the decade. We are at the start of what promises to be an exciting journey.”

I am often contacted for interviews for the media and often receive emails regarding various aspects of astronomy... yes even requests to provide feedback regarding “UFO videos” seeking insight to their authenticity. Most of my requests are local but this was the first time I received a request from the UK! I was keen to review the book as the UK provides for some of the most insightful astronomy books available to the public. I rarely have the opportunity to read magazines and books from the UK due to the exchange rate and shipping costs.

You can find the Yearbook of Astronomy from various sources including amazon for a reasonable price compared to other books in our personal library of astronomy books (including kindle versions <https://www.amazon.ca/Yearbook-Astronomy-2021-Brian-Jones/dp/152677187X>).

As a member of the Royal Astronomical Society of Canada - New Brunswick Centre (rasc.ca / RASCNB.ca) for over a decade and a half it has been enough years of astronomy books and online research. 15 years is a short span compared to the history of the series "Yearbook of Astronomy" which is coming upon 60 years of production and Diamond Jubilee edition in 2022. Our (RASC) typical 'go to resource' for astronomy is the Observer's Handbook (referred to as "OH") which was rebranded in 1911 – with 110 years of astronomy this year it is nearly twice the legacy! At first I was concerned about comparing the "Yearbook of Astronomy" to the OH risking pressures from Society elders to ban me from future membership with the Society (joking). I found relief from the Preface where they positioned the book for "all readers" and maybe not as technical or detailed as the OH and other astronomy reference books:

*"more precise information regarding planetary positions can be found in a number of publications, a good example of which is **The Handbook of the British Astronomical Association**"*

The comparison to the British Astronomical Association would be a similar publication as our RASC OH.

I have only read the RASC OH from start to finish a couple of years during my time with the Society. I used the OH during the year – every year – as a reference book when needed but rarely is it considered a 'sit down and read for enjoyment and relaxation. The Handbooks (RASC and British Astronomical Association) are meant more as reference books verses casual reading. You can find timing for various astronomical events in the Handbooks and very detailed – and sometimes very technical – information about various topics within our hobby of astronomy. The OH is a valued resource in our personal libraries as well as many observatories and universities around the world.

The Yearbook of Astronomy was a nice departure from my typical technical reads and reference books. It was a challenge to put the Yearbook of Astronomy down and I found myself compelled to read on to the next section of the book. In addition to the typical star charts (Norther and Southern skies), monthly events, planetary events during the year, phases of the moon, etc there were many well written discussions on various topics related to astronomy such as the "Monthly Sky Notes and Articles":

- Salute 1: The First Space Station
- The Star That Was Older Than the Universe
- Early Precariously Balanced Refractors
- Burying the Sun
- Tinkering with Time
- Male Family Mentors for Women in Astronomy
- etc

The book has the star charts as well as the typical monthly review. Each month will include:

- New moon and full moon date
- Summary of the planetary activities
- Approximately two-page article of interest

If you are not a fan of complex charts to plot exact positions of Jupiter's moons and exact timings of lunar rise/set times etc... you will enjoy this handy book for a more relaxed read which keeps you wanting to read the next page – yet it also includes astronomy events during the year so you won't miss an event during the year.

The quality of the book is the best I have seen for a soft cover book. The cover is about three times the weight of the RASC OH and would be a “new quality of soft cover” that is nearly the same as a hard cover quality. The book has a beautiful colour image of the Juno spacecraft passing over Jupiter... but that is not the end of the colour prints... after the star charts, every 2-3 pages is printed in colour. The book is 384 pages at 658g vs the OH (2019) is 352 pages and 354g so you can see the paper is about twice the weight (higher quality paper). The paper is smooth to the touch, and nice brilliance level – very high quality paper. The thickness of the paper is more opaque so there is less shadowing from the text on the following page. The whiteness of the paper, along with the larger font, makes for a more pleasant experience for your eyes – especially us older astronomers now finding we need glasses to help us read.

Although children in middle school could read the book with ease, I would estimate it to be more of an entry high school level read making the Yearbook a great for most school age kids through to adult level reading. There is a generous mix of images verses text to help explain the context and keep the interest of various readers. The size of the book is about 1cm shorter than the OH and about 1cm wider – so approximately the same size when on a bookshelf or tucked away in your laptop bag. High quality production print which is matched by the quality of the contents!

All astronomers – armchair to avid observers – will enjoy having this book in their collection. With the additional articles, the book is not only for 2021, but also something you will want to keep handy for it's monthly articles and the additional articles section at the back of the book. The book includes enough details to help you with planning an evening of observing and many articles of interest which will help us deal with the evenings with the clouds keep our telescopes at bay!

I would highly recommend this book for everyone interested in astronomy... both as a reference and as a relaxing read. Keep the OH handy for the technical charts, scientific value and details and keep the Yearbook for a quick “what's up” and articles of interest.