



Backyard Guide to the Night Sky

Howard Schneider , Dennis Mammana , Sandy Wood (Foreword by)

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Backyard Guide to the Night Sky Howard Schneider , Dennis Mammana , Sandy Wood (Foreword by) Stargazing's too much fun to leave to astronomers, but often we're blinded by science—dry facts can easily turn enchantment into a chore. We just want to lie down, look up, and understand the heavens above. The *National Geographic Backyard Guide to the Night Sky* shows us how.

Authors Howard Schneider and Patricia Daniels take an expert but easygoing approach that doesn't overwhelm—it invites. Ten chapters cover everything a beginning stargazer will need to know, from understanding the phases of the moon to picking Mars out of a planetary lineup to identifying the kinds of stars twinkling in the constellations.

Throughout the book, star charts and tables present key facts in an easy-to-understand format, sidebars and fact boxes present illuminating anecdotes and fun facts to sweep us swiftly into the stardust, and by the time we realize we've been schooled in solid science we're too engrossed to object.

Along with practical advice and hands-on tips to improve observation techniques, the guide includes an appendix full of resources—from books and web sites to lists of astronomy clubs and associations to local planetariums and museums. This indispensable book guides us on a new path into the night sky, truly one of the greatest shows on Earth.

Backyard Guide to the Night Sky Details

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From Reader Review Backyard Guide to the Night Sky for online ebook

Peter Mcloughlin says

Fairly good pocket guide. Includes basics of the night sky and backyard observations. Pretty good resource for an amateur astronomer.

Megan Easley-Walsh says

My thoughts on Backyard Guide to the Night Sky

<http://meganeasleywalshauthor.blogspot...>

Jenny says

Nice pictures in this one. And I like the "field guide" feel to it.

Chris says

Nice book for people getting started in star gazing.

Chris Chinchilla says

Paradise Lost, an epic poem in blank verse, written by the 17th-century poet John Milton as he became blind at the end of his life, is a retelling of the Biblical story of the Fall of Man. While based on the Christian tale, the poem incorporates many topics, and spends most of its verses detailing the journey of Satan and his war on the angels. The depiction of Adam and Eve draws an elaborate panorama of their trials. This classic of Western literature is wide-reaching and enormously influential, and should not be absent from the modern reader's bookshelf.

Review

Pullman sagely advises the uninitiated to put sound before sense, allowing the power of Milton's music to work its magic. --Wall Street Journal

About the Author

John Milton (9 December 1608 8 November 1674) was an English poet.

Jeffrey Sylvester says

Great reference manual for a beginning astronomer. Clear explanations, good tips and directives for exploratory nights.

Having said that a person does need to get out there with their equipment to implement what is suggested and that's where the rubber meets the road. I haven't made it further than the moon but will keep this manual as my mainstay for every clip of advancement I hope to make each summer.

Lucas Weidner says

“Take a clear evening, grab your copy of Backyard Guide to the Night Sky, and don’t forget the blanket!”

A great introduction to amateur sky viewing, this helpful field guide will tell you all you need to know to get started. The book is chock-full of helpful pictures, facts, where-to-views, and other really helpful information that enrich the viewing experience.

“Backyard Guide to the Night Sky” has hooked me on to amateur astronomy, something I think will most likely interest me for the rest of my life. It’s quite a humbling and awe inspiring experience to see that we are just in infinitesimal dot in a huge sea of space-fairing wonders!

I definitely recommend trying out amateur sky viewing, and I also definitely recommend taking this book along when you do!

Sarah says

This book is a pretty comprehensive introduction to space and astronomy and goes into a lot of basic science that's easy to understand even if you're not a science person. it's small and compact, but I thought the sky maps weren't as well done as a lot of other maps I have seen and used, and they get sliced in half because of the way the book is bound, which is unfortunate. It's very well formatted and has a lot of good information, and gives you an idea of the role of astronomy in different cultural histories.

M says

This reference is to be used as needed. It wasn't as helpful as I'd hoped for naming the moons of Saturn.

Shawn says

Introduction

This book has changed my life. Or perhaps I should say, getting to know the night sky a little better has changed my life. I have long been way too ignorant of the heavens above.

Becoming familiar with the visible night sky gives one a broader sense of association with the universe. It instigates an understanding that we are all indeed moving rapidly through space and time. Night by night, we all turn about, away and towards the constellations that progress across the dark sky. As earth orbits and spins, our view constantly changes.

Gaining familiarity and awareness of the night sky allows one to gain a sense of the earth as home. There exists some hidden comfort in walking outside and being able to immediately recognize the familiar brightness of Jupiter, the beaming countenance of the Gemini twins, or the reddish glow of Mars, all of which bode mysteriously above. It is quite magnificent to notice such grandeur, to lift your face momentarily, away from your busy life, and grasp, if only for an instant, the primordial wonder and glory of just “being”. Of just being here now, of being aware, of existing, right now, in this particular space and time.

The stars are seemingly ageless and we temporarily exist beneath them. In the context of the stars, our selfish strivings against one another are quite ridiculous. In this review, I seek to share a bit of this magnificence, for those who might not read this entire book, and to facilitate learning for those who do.

Grasping The Celestial Sphere

The Celestial Sphere is an imagined giant globe enveloping the earth. For locational purposes, the stars are imagined attached to the celestial sphere.

This celestial sphere would have a celestial equator, which is a projection of the earth’s equator. Stars can be found using two coordinates called “declination” and “right ascension”. Right ascension refers to movement in degrees along the celestial equator. The starting point is where the Sun hits the Earth’s Equator on the vernal equinox (Spring Equinox). Declination is like latitude and refers to how far the star is above or below the celestial equator. Because the earth spins from west to east, it seems that the stars pass overhead from east to west.

Within the celestial sphere, the line that reflects the earth’s orbit is called the ecliptic. In the same manner as the celestial equator is a projection of the earth's equator, so the ecliptic is a projection of the Earth’s orbit.

The ecliptic is the east-west path that the Sun and Moon take across the sky. All planets, because they orbit in roughly the same plane, will be found along or near this path. The planets of the solar system orbit in roughly the same plane and the constellations of the zodiac follow roughly the same path with a new one coming into view every month.

As a beginner’s interest is first with what can be seen with the naked eye, I’ll concentrate on those objects that are most visible.

The Moon

Noticing the phases of the Moon imbues a sense of movement and time. The reflected light of the Sun puts the Moon through its phases. As the moon moves around the earth, it exhibits phases, depending upon how much light it is reflecting from the sun. It takes just over 29 days for the Moon to pass once around the earth.

In a lunar eclipse, the earth lies between the sun and the moon, casting its shadow upon the moon. In a solar eclipse, the moon comes between the sun and the earth. Because the moon's rate of rotation matches the rate of its progress around the earth, it always keeps the same side exposed to the Earth. Earth's gravity causes the moon's spin to synchronize with the speed of its orbit.

The Planets

A way to remember the order of the eight planets is the phrase: "*My Very Educated Mother Just Served Us Nachos*" for **M**ercury, **V**enus, **E**arth, **M**ars, **J**upiter, **S**aturn, **U**ranus, **N**eptune. Below I briefly describe only the planets that are visible with the naked eye.

Venus – Venus is the brightest object in the sky after the Sun and the Moon. At its brightest, Venus is 8 times brighter than Jupiter and 23 times brighter than Mars. Venus is the planet nearest to earth. Venus is visible for a few months each year, either around sunset, near the western horizon, or around sunrise, in the east. Venus is only visible for a few hours after sunset and before sunrise. Venus passes through phases like the Moon. Venus is commonly misreported as a UFO.

Mars – Mars glows an orangish red. It has two moons named Phobos and Deimos. Mars begins each new apparition near the eastern horizon, then rising higher in the sky.

Jupiter – Because it has a 12-year orbit, Jupiter spends about a year in each constellation. Jupiter has 66 moons, one of which is Europa. Jupiter has a quick ten-hour rotation & persistent storm systems, the most famous being the "Great Red Spot"

Mercury – Mercury is visible at twilight or at dawn. It is one of the most difficult planets to spot because it is frequently hidden from view in the glare of sunlight. Mercury is typically visible for a couple of weeks, about six times a year, in the fall (mornings in September and October) and spring (evenings in March and April). You will find Mercury either low in the west after sunset or low in the east before sunrise. Mercury goes through phases as it moves around the sun.

Saturn – Saturn is the most distant of the naked-eye planets. Saturn has a 29.5-year orbit, so it lingers within a particular constellation for more than two years at a time. A telescope is needed to see Saturn's rings. Saturn has the so-called shepherd moons: Pan, Atlas, Pandora, and Prometheus, which straddle two of the rings, in pairs; and act like herders to keep the rubble, dust, and ice in the rings intact.

Brightest Stars

Sirius – Sirius is the brightest star in the sky. It is a part of the Canis Major constellation and is best viewed in January and February.

Arcturus – Is a bright star in the Bootes constellation. It is seen in the Northern Hemisphere in summer.

Vega – Is a bright star in the Lyra constellation. It is seen in the Northern hemisphere in summer.

Capella – Is a bright star in the Auriga constellation. It is seen in the Northern hemisphere in winter.

Rigel – Is a bright star in Orion. It is seen in the Northern hemisphere in winter

Polaris – Is commonly referred to as the North Star. Polaris is a guidepost. When you face Polaris, south is behind you. Polaris is part of the constellation Ursa Minor, which harbors the little dipper asterism. The bowl end of the Big Dipper points to Polaris. Polaris is constant; it does not rise and set or change position during the year.

Asterisms

Asterisms are observable star patterns but not constellations. Asterisms often form a part of a larger constellation.

Big Dipper – The Big Dipper is visible by the naked eye all year round to the northern hemisphere.

Little Dipper – Is found by drawing a mental line from the front of the Big Dipper's scoop to Polaris, the North Star.

The Summer Triangle – Is formed by the three stars Altair, Deneb, and Vega (2nd brightest star in the northern sky). The Summer Triangle is visible right overhead in the summer, in the Northern Hemisphere.

Winter Triangle – Is formed by the stars Betelgeuse, Procyon, and Sirius.

Sickle – Is a curved set of stars in Leo that includes the star Regulus.

Great Square of Pegasus – Is formed with the star Markab.

Constellations

Over the course of a year, as the earth moves through its orbit, each of the constellations will follow in succession, first coming into view in the east and then rising higher night by night until eventually lowering in the west, where they will disappear for a year. The constellations tend to move in the line of travel of the ecliptic, the earth's path around the sun. It is in the westernmost phase that the constellation is associated with the signs of the zodiac, because it is at this westernmost point that the sun is aligned or "in" the particular constellation. It takes a 25,800-year precession for the spring equinox to appear in each of the 12 constellations of the zodiac.

I am describing below only the most prominent constellations that might be viewed with the naked eye, in

the order of the months in which they are most visible to the northern hemisphere.

January – February - Orion – the Hunter – Orion includes three of the brightest stars in the sky: Rigel (the 6th brightest star), Betelgeuse (the 9th brightest star), and Bellatrix. Orion is referenced twice in the book of Job (9:9 and 38:31), as well as in The Iliad and The Odyssey. Betelgeuse's diameter is larger than the orbit of Earth and it has 20 times the mass of our sun. Rigel is 17 times the mass of our sun. The Orionids meteor shower erupts from Orion from September 10 to Oct. 26, peaking on Oct. 22, with around 25 meteors an hour.

January – February – Canis Major – the large dog – Canis Major is located just east of Orion and harbors Sirius, the brightest star in the night sky. You can identify Sirius by tracing a line through Orion's belt and continuing southeast.

January – February – Taurus – the bull – Orion's belt points toward Aldebaran, the alpha star of Taurus and the eye of the bull. The Pleiades star cluster, to the northeast, marks the bull's top shoulder. Pleiades is a gleaming congregation of stars in Taurus, six or seven of which can be seen with the naked eye. The Pleiades cluster is mentioned in the Book of Job: "Canst thou bind the sweet influences of Pleiades, or loose the bands of Orion?"

February – March – Gemini – the Twins – The feet of the twins are just northeast of Betelgeuse. Castor and Pollux are the bright twin stars that form the heads of the Gemini twins. The Geminids is an impressive meteor showers that occurs annually from Gemini around December 7 to December 17 (peaking around December 13). The Geminids produce around a hundred meteors an hour. The Geminids are best viewed in the evening as opposed to after midnight.

March – April – Ursa Major – the great bear – This constellation includes the Big Dipper asterism. Its alpha star is Dubhe.

March – April – Leo – the lion – Leo is a large and easily recognized constellation, from the Northern Hemisphere, for the first half of the year. Leo is one of the easier constellations to construct mentally. Its alpha star is Regulus. The Leonids meteor shower occurs from Leo from November 14 through November 21, with a peak on November 17. The Leonids emit only about 10 to 15 meteors an hour but around half of them leave a long-lasting train across the sky, like a vapor trail of a jet.

May – June – Virgo – the virgin – Virgo's alpha star is Spica. To find Virgo go from the end of the handle of the Big Dipper south in an arc to Arcturus (in Bootes) then on to Spica directly beneath it. This constellation harbors the Virgo cluster of galaxies, which is more than 2,000 galaxies grouped together with a

gravitational force so great that it is slowly pulling our galaxy toward it.

June – Bootes – This is one of the most distinct constellations in the summer sky. It's bright star is Arcturus (3rd brightest in the sky). The meteor shower Quadrantids flow from Bootes annually from January 1 through January 5 and peak on January 3. The Quadrantids produce up to a hundred shooting stars an hour. Meteor showers occur when the earth passes through the dust trail of a comet.

July – August – Scorpius – the scorpion – Scorpius is among the easier constellations to recognize. Its alpha star is Antares.

July – August – Lyra – Lyra accommodates the bright star Vega, which forms the Summer Triangle, along with Deneb and Altair.

July – August – Sagittarius – Sagittarius is located at the widest band of the Milky Way and it offers a window into the center of our galaxy. To locate Sagittarius, first find Vega and from there locate a group of eight bright stars.

August-September – Cygnus – the Swan – Cygnus accommodates Deneb, which is a bright star that forms the Summer Triangle, along with Altair and Vega.

August – September – Aquila – the Eagle - Aquila contains Altair, which is part of the trio of stars that form the Summer Triangle. Altair is one of the brightest stars in the sky.

September – October – Aquarius – This is one of the fainter constellations; however, it harbors the Eta Aquarids meteor shower visible from April 19 to May 28 with a peak around May 4. The Eta Aquarids occur when earth approaches the dust trail of Halley's comet, which doesn't return until 2061, which would be around my 101st birthday.

September – October – Pegasus – This constellation is of mild magnitude but it occupies a large position in the sky. It may be identified by its square asterism. It harbors "Stephans Quintet", which is a group of five galaxies, four of which are colliding. The alpha star of Pegasus is Markab.

October – November - Cassiopeia – Cassiopeia is identified by its "W" or "M" shape. When you look toward Cassiopeia you are looking into our own galaxy and toward the vast majority of billions and billions of other stars that reside in it with us. Cassiopeia is visible all year from much of the northern hemisphere and is one

of the easiest constellations to identify.

November-December – Perseus – This constellation is easy to pick out. It features the star Algol, which is an eclipsing variable that dims by a full magnitude for about ten hours every three days. The alpha star in Perseus is Mirfak. The meteor shower Perseids originates from Perseus from July 17 to August 24 with a peak around August 12. The Perseids emit a flow of shooting stars at a rate of up to 80 an hour. The Perseids occur when earth approaches the dust trail of the Swift-Tuttle comet, which is scheduled to return as a bright naked-eye comet in 2126, at which time I'll either be dead or 166 years of age.

December – January – Auriga – Auriga is easily identified by the bright star Capella (6th brightest star in the sky). It can be found on a line between Orion and Polaris.

Year Round – Ursa Minor – Includes the Little Dipper, which is formed by the prominent stars in Ursa Minor, but the Little Dipper stars are not the only stars in the constellation. This is the northernmost constellation with alpha star Polaris, a reliable constant in the northern hemisphere sky.

CONTINUED IN COMMENTS SECTION BELOW

Chris says

I was comparing this book, and Nightwatch A Practical Guide to Viewing the Universe and I stopped reading this one after the second chapter in favour of Nightwatch. There were a few typos which always irk me, and I much preferred how Nightwatch presented the scale of the universe than how Backyard did it so that made me decide not to finish this one.

Mark says

I read this book straight through because I had always wanted to learn about the constellations and other night objects. This was a great, easy-to-read book and is going to be a very useful resource (I think it's better suited for reference on particular subjects as opposed to cover-to-cover reading as I did). I particularly liked the star-charts and breakdown of each constellation. I've already been able to spot certain things I had no clue how to look for before, like the night I looked at Sagittarius and then also noticed some of the nearby galaxies that are visible through binoculars. Going forward, I imagine this will be a great starting place in any night search that I can then supplement with more detailed and timely online resources.

Adham Abozaeid says

A nice introduction to astronomy and basic objects of the sky

Sassan says

A solid introduction and overview of the night sky.

Tom C. says

A very good introductory book in to both Astronomy and Stargazing, but very simplified. This would be a great book for someone with little to no prior knowledge on the subject, but for anyone that has a background in the field or is looking for more detail you'll likely find yourself looking for book #2.

I really expected more in the way of how best to start out, what to look for first and when/how...a more detailed breakdown of the proper way to use telescopes and/or astronomy binoculars and the best way(s) to set things up. How to plan and organize your stargazing routine. There was virtually none of that in this book...and though the star charts and accompanying information are helpful, I don't feel that I will be using this book in the field. Personally, this is more of an introduction to things and not so much a field guide for the backyard observer.
