

Astronomer's Pocket Field Guide

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Rony De Laet

The Casual Sky Observer's Guide

Stargazing with Binoculars
and Small Telescopes

 Springer

Rony De Laet
Renaat Woutershof 18
3460 Bekkevoort, Belgium
rodelaet@yahoo.com

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Preface

Congratulations on your acquisition of this copy of *The Casual Sky Observer's Guide*. It is your starting point for a great journey through time and space.

On our journey, we are not alone. Each clear night thousands of amateur astronomers all over the world are making the same voyage with you. Many generations have gone before us. Our ancestors watched the stars with great intensity. The night sky was their timekeeper, calendar, and compass. The night sky announced the changing of the seasons. It dictated when to plant and when to harvest. The stars seemed to rule about life and death on Earth. Our ancestors saw patterns in the sky. They imagined things of importance, such as hunters and quarry, kings and queens, evil and good. They told great stories about the constellations in the night sky. We carry with us the oral traditions of thousands of years of stargazing.

When we see the twinkle of the stars, we look at the same stars our ancestors looked at. The stars are our origin and our destination. Today, society seems to ignore this legacy. During our modern day to day worries, we don't take the time to care about the rising and setting of a celestial object. We're simply too busy with our work and family. As if we don't want to know where we came from nor where we're heading.

In the year 2009, a year before the writing of this book, we celebrated the International Year of Astronomy (IYA2009). It was a time to reflect on the 400th anniversary of the first telescopic observations recorded by the Italian astronomer Galileo Galilei. Galileo discovered craters and mountains on the Moon. He was the first to note that Jupiter has its own moons, that Venus shows phases like our Moon, and that there are many more stars than the naked eye can see. Proud as he was, he wrote down his recordings and drawings in what we could call a first scientific treatise based on telescopic observations.¹ In 1610 he published his work *Siderius Nuncius*, or *the Starry Messenger*. Galileo's conclusions incurred the hostility of his contemporaries. Society was not ready to accept his discoveries, nor was the Catholic Church pleased with another world model. Freedom of thought was not encouraged in 1609. Although the telescope was eagerly accepted for its military use, its astronomical application was considered rather offensive. Galileo only tried to understand the universe as he saw it in his telescope. He was put on trial in 1633, for suspicion of heresy. He was ordered to abandon all ideas contradictory to the Holy Scripture.

¹ The English astronomer Thomas Harriot is credited as the first observer to draw an astronomical object with use of a telescope. He made a map of the moon, several months before Galileo did. Unfortunately, Thomas Harriot never published his work.

Publication of any of his astronomical work was strictly forbidden. Galileo eventually lived out his final days under house arrest.

Four hundred years later, we live in somewhat better times when it comes to scientific investigation. In a large part of the world, freedom of thought is widely accepted. Science has made great progress. And our views on the universe are totally different than 400 years ago. Humankind has slipped away from the center of the antique universe towards the crusty surface of an insignificantly little planet near a desolate dwarf star in the backyard of a mediocre galaxy. The telescopic instruments have been greatly improved. Galileo had to build his own telescopes. They were rather crude tools, and the images that they produced were blurred by the imperfections in the glass that was used for the ground and polished lenses. Today instruments are much improved and refined. For the price of a good meal, you can buy a decent pair of binoculars, which optical quality-wise will outperform any of Galileo's instruments by great measure.

The best news is that a pair of binoculars is all you need to join in our casual exploration of the Milky Way and the universe. Chances are good that you already own a pair of binoculars or that you know someone who has a pair you can borrow. It might surprise you, but many of the destinations that we will visit are even visible with the naked eye. So for the time being, there is absolutely no need to buy a large telescope.

Our exploration of the universe is divided in twelve monthly chapters. Each month, different wonders of the deep sky will be covered. As such, you can use the book throughout the year, as the seasons come and go. When you have a clear evening and some spare time to spend under the stars, just start with reading the appropriate chapter. Each object is accompanied by a finder chart and a drawing. The finder chart will help you to locate the desired object. The drawing will show you what to look for and what to expect to see with your binoculars. These drawings are the author's personal pencil sketches. They show my perception of the object. I deliberately did not use photographs, because they do not represent the night sky in the same way that our eyes do. Throughout this guide you will hone your observing skills, and when you understand the true nature of the deep-sky objects, you'll learn to see with your mind's eye as well. When you're not familiar with the constellations, you can use the all-sky star maps at the beginning of the book. These maps will help you to locate the constellations of interest.

Before you dive into one of the deep-sky chapters, do read the preceding chapters first. These will help you to prepare for your journey with additional equipment and techniques in the best possible way. *The Casual Sky Observer's Guide* is all you need to start observing from your own backyard as well as from a fine holiday spot.

Broaden your horizon and have yourself a great trip among the stars!

Acknowledgements

The writing of this book would not have been possible without the help and support of the following people.

First of all I would like to thank the true stars in my life, my wife Birgit and my children Hanne and Michiel for their great support during the writing of this book.

I want to express my deepest admiration for the late Carl Sagan, whose exciting television series, *Cosmos*, triggered my fascination for the stars when I was a child. I could not have imagined then that I would ever observe and sketch the wonderful cosmos, about which he could narrate in such a magnificent manner.

A special thank you goes to my beloved parents, who bought me my first telescope when they understood my ambitious interest in exploring the mind-staggering depths of the universe.

I also want to thank Stephen James O'Meara, whose book, *The Messier Objects*, opened my eyes. With his book, O'Meara taught me how to become a better observer through sketching. Though I never had the privilege to meet him personally, I often felt like I was looking over Stephen's shoulder through his telescope. The marvelous drawings of Stephen James O'Meara inspired me to make my own series of sketches of the universe.

A very special thank you goes to Richard Handy, a very experienced observer and a talented sketcher. His sketches of the Moon are truly works of art. Richard has always encouraged me to keep on sketching. He is (co-)author of two astronomy books and the inspiring creator of the website 'Astronomy Sketch of The Day' (www.asod.info).

I want to thank Pierre Chevalier, the developer of the software *Sky Charts* (Cartes du Ciel). *Sky Charts* is a complete planetarium program. It is used by many amateur astronomers to prepare their observations. Pierre Chevalier was so kind to make *Sky Charts* available for free. This versatile charting program allowed me to draw the finder charts for this book.

I am grateful to Bill Tschumy, the creator of the three-dimensional galactic atlas, 'Where is M13.' His innovative application helps us to visualize the true location of deep-sky objects in space. With the use of 'Where is M13,' I was able to create the unique galaxy views for the book. Bill Tschumy's software is available for free.

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Finally, I want to thank my good friend Thomas McCague for his outstanding support during the writing of this book. Tom has been an amateur astronomer and telescope maker for more than 40 years. He is not only a passionate observer

and a gifted sketcher, but he also hosts public star viewings at the G. Jack Bradley Observation Deck of the Moraine Valley Community College in Illinois. Tom has been my sounding board from the very initiation of this book. Having an experienced amateur observer ready to evaluate the illustrations and the texts was of inestimable value to me. I fear to count the sleepless nights he spent on reviewing the drafts of the text. Tom and I are both passionate star gazers with devotion for sketching. Our conversations have helped shaped this book in its final appearance. Tom, it was a privilege to be able to rely on your generous assistance during the development of the manuscript. Thank you, my friend.

About the Author

Rony De Laet, a Belgian national who holds a Master of Science degree in Industrial Science (Chemistry), has been an enthusiastic amateur astronomer since his teens. He has had articles published (in Dutch) in the monthly Flemish VVS Astronomical Magazine, and his special talent is in producing photo-real computer drawings of the night sky. His work was on exhibition at the International Astronomical Sketching Exhibition, called “In the Footsteps of Galileo,” at the Blackrock Castle Observatory in Ireland (from February until May 2009) and then later at Birr Castle, the historic site of Rosse’s 1845 72-inch telescope (now restored and open for visitors).

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