Introduction

Welcome to volume 3 of *Annals of the Deep Sky*. As with the first two volumes of this series, the constellations featured in this book comprise a wide assortment of deep-sky marvels that we think you will find dazzling, if not dizzying. To be sure, there is a little of everything represented in the following pages, with many stories to tell, and shiny astronomical nuggets sure to please if not astonish.

It may seem odd, but as we did the research for this volume, we found that in some instances the kinds of objects present in a single constellation form recurring themes. That's not by design; that's just how the objects fell out. Canes Venatici, for example, contains several irregular starburst galaxies as well as interacting systems. Canis Major features a large population of open clusters at various stages of evolution. Some of these themes are pure happenstance, while others are suggestive of the direction we are looking into, or out of, the Milky Way. We expect to see galaxies of all types when looking away from the Galactic plane (Canes Venatici) and hordes of open clusters when looking deep into the Milky Way (Canis Major). But what makes it seem all the more uncanny is when some of the types of objects — Arp galaxies, say — appear as variations on a theme in the same region of the sky.

We're especially proud of our treatment of the Whirlpool Galaxy, M51, in Canes Venatici. Please note the stunning image on page 187 and the detailed illustrations we've included to help you deconstruct this galaxy as you observe or image it. You will come to know M51 as well as your own neighborhood, including the intriguing kink in the northern spiral arm, the "fuzzy" red star clusters and "crown" structure found in its satellite, NGC 5195, and the galaxy's intriguing nucleus. You will also learn how a volcano in Iceland may have hampered William Herschel's first detailed observations of M51. This constellation is also host to a fine compact glob-

Dennis Webb (left) and Jeff Kanipe at the Texas Star Party, May 2015. Posing with Dennis' 17-inch Dobsonian reflector, the authors prepare for a night of observing, after the release of volumes 1 and 2 of *Annals of the Deep Sky* at the Northeast Astronomy Forum in April. The many star parties held each year represent a critical mass of expertise, anticipation, and practical knowledge shared among amateur astronomers who gather to explore the universe at locations with dark, natural skies. The authors have attended many such events and have always come away feeling inspired and recharged. Readers can find local events by contacting their nearest astronomy club or using their favorite Internet search engine. One reliable method is to type in one's state followed by "star party." Let the fun begin! Photo courtesy Alexandra Witze.

ular cluster (M3), an intriguing irregular galaxy (NGC 4449), and — one of our favorites — the LINER system M106, with its bright core and crazy spiral arms.

We cannot mention Canis Major without alluding to its alpha star, Sirius, brightest star in the night sky, and its very challenging-to-observe white dwarf companion. While in that section, you will want to acquaint yourself with "The Red Sirius Mystery," which, by the way, is still a mystery. Variable

star observers will want to monitor the massive pulsator Mirzam (β Canis Majoris), which flickers between magnitude 1.92 and 2 in just six hours. This constellation also features a number of Wolf-Rayet stars, including EZ Canis Majoris, which is associated with the nebular bubble Sharpless 308. Canis Major is by no means rich in galaxies, but it does include two appealing systems, the face-on and possibly polar-ring spiral NGC 2217, and NGC 2280, a "lopsided" spiral.

The *Annals of the Deep Sky* series is well underway now. As you read this, volume 4 is coming together and volume 5 is being written. (Wait until you see Carina!) From our perspective, we cannot help but proclaim the universe a never-ending wonder of wonders. We hope you will say the same thing after reading this and the coming volumes.

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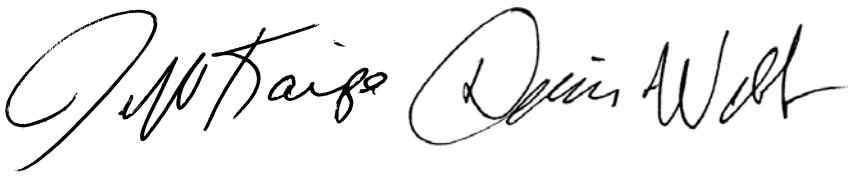

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Dedicated to Clyde William Tombaugh (1906–1997).
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