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A Worthy Successor to Burnham's: Annals of the Deep Sky

By: Alan Dyer

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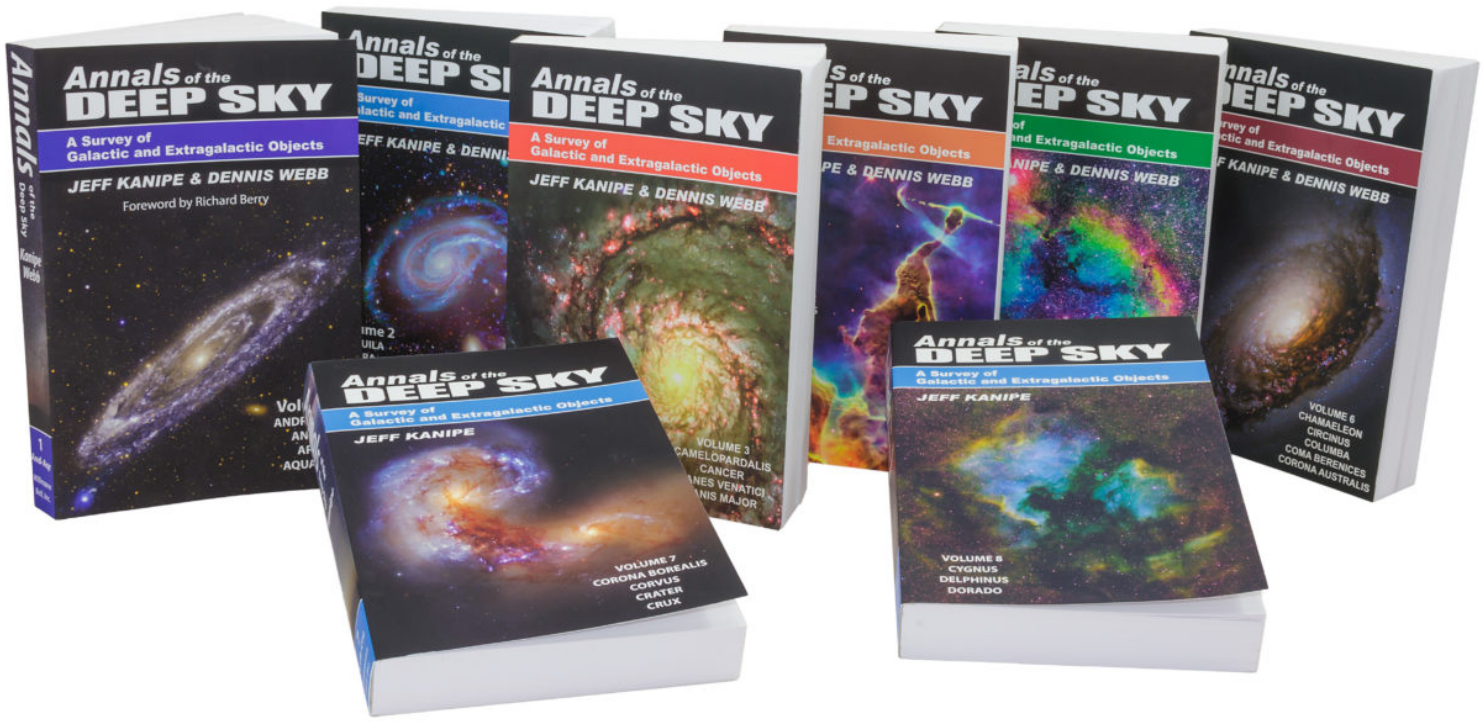
Annals of the Deep Sky: A Survey of Galactic and Extragalactic Objects is a multi-volume book series by Jeff Kanipe and Dennis Webb. Credit:

Alan Dyer

Observers and astrophotographers looking for the most detailed and accurate information about deep-sky objects will find it here in Annals of the Deep Sky.

Back in the late 1970s I can remember amateur astronomers, me included, anxiously awaiting the publication of each new volume of *Burnham's Celestial Handbook*. Compiled from the copious notes prepared over many years by then Lowell Observatory astronomer Robert Burnham Jr., his three-volume work became the authoritative guide to stars and deep-sky objects, with science facts and figures interspersed with Burnham's eclectic mix of mythology, archaeology, and poetry.



As of early 2022, Annals of the Deep Sky consists of eight softcover volumes covering 34 of the 88 constellations in alphabetical order up to Dorado. Only Volume 8 is in color, making it $9 more expensive than each of the previous black-and-white volumes. Credit: Alan Dyer

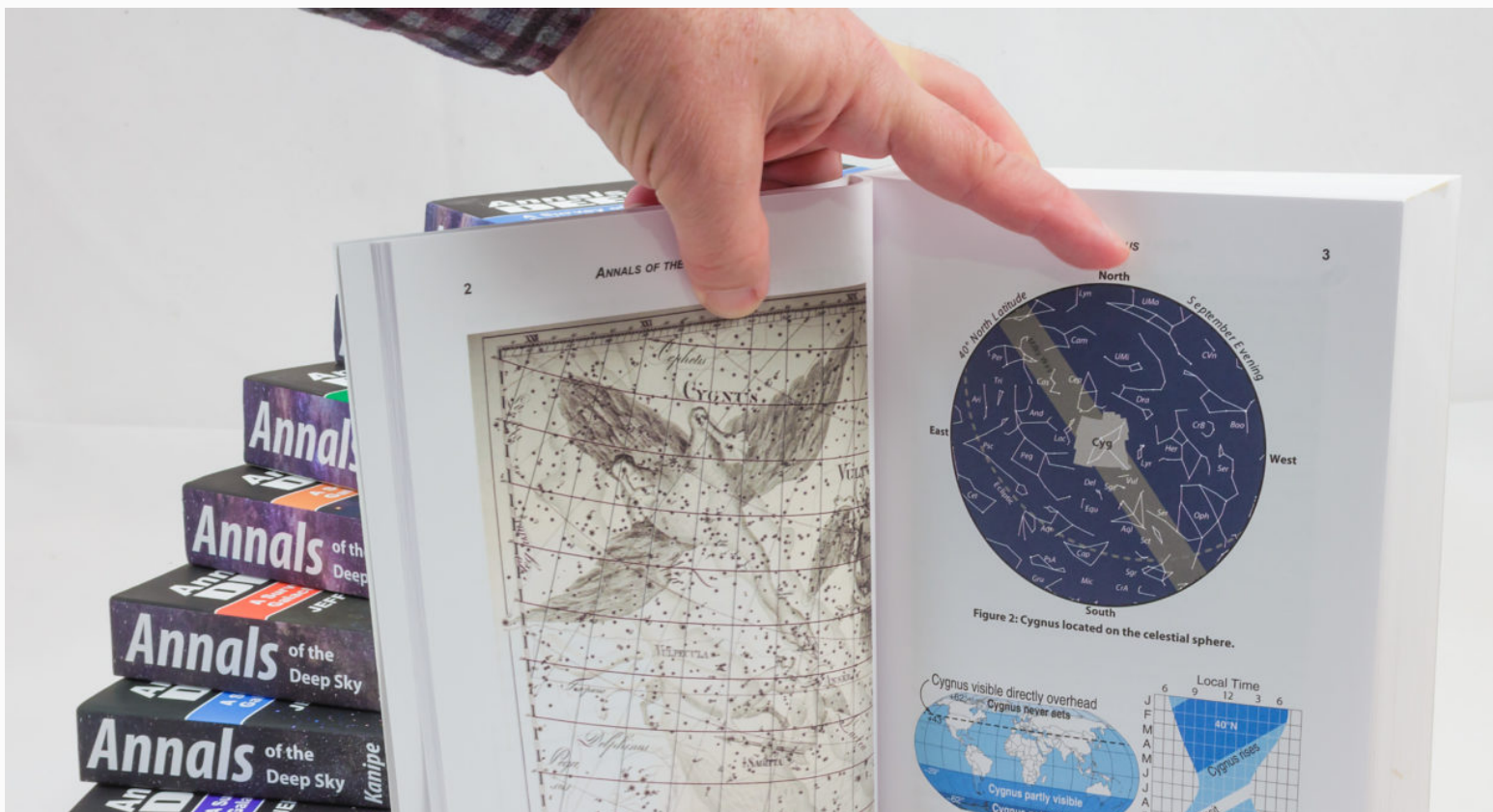
Burnham's is still in print, and remains a useful addition to any astronomer's library. But its science is now half a century old. Who would tackle the job of creating a new *Burnham's*? In 2015 we had our answer, as the first two volumes of its worthy successor were published: *Annals of the Deep Sky*, by Jeff Kanipe and Dennis Webb. Since then, six more volumes have been released, now published and sold by *Sky & Telescope* magazine and its owner, the American Astronomical Society.

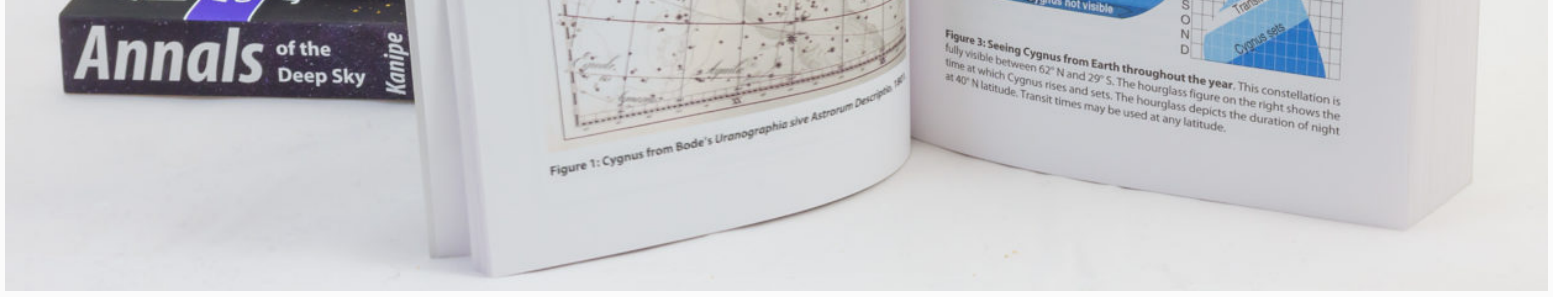
Each volume covers hundreds of stars and deep-sky objects in several constellations, in alphabetical order starting with Andromeda, Antlia, Apus and Aquarius in Volume 1, and ending (for now) in Volume 8 with Cygnus, Delphinus and Dorado. All southern

hemisphere constellations will be included; indeed, Volume 9 will focus on just the Magellanic Clouds, two southern-sky galaxies containing enough targets on their own to fill a volume.

As in Burnham's Celestial Handbook, each constellation section starts with its mythology and sky lore, with illustrations drawn from art and vintage star atlases. Credit: Alan Dyer

The obvious question is, how long will it take to complete the sky coverage up to Virgo, Volans and Vulpecula? Even the authors might not know! Their work in preparing each volume so far has been massive, as the level of detail in *Annals* is astounding, with data, information, and illustrations gathered from dozens of academic works, databases, and research papers, as well as previous observing guides.

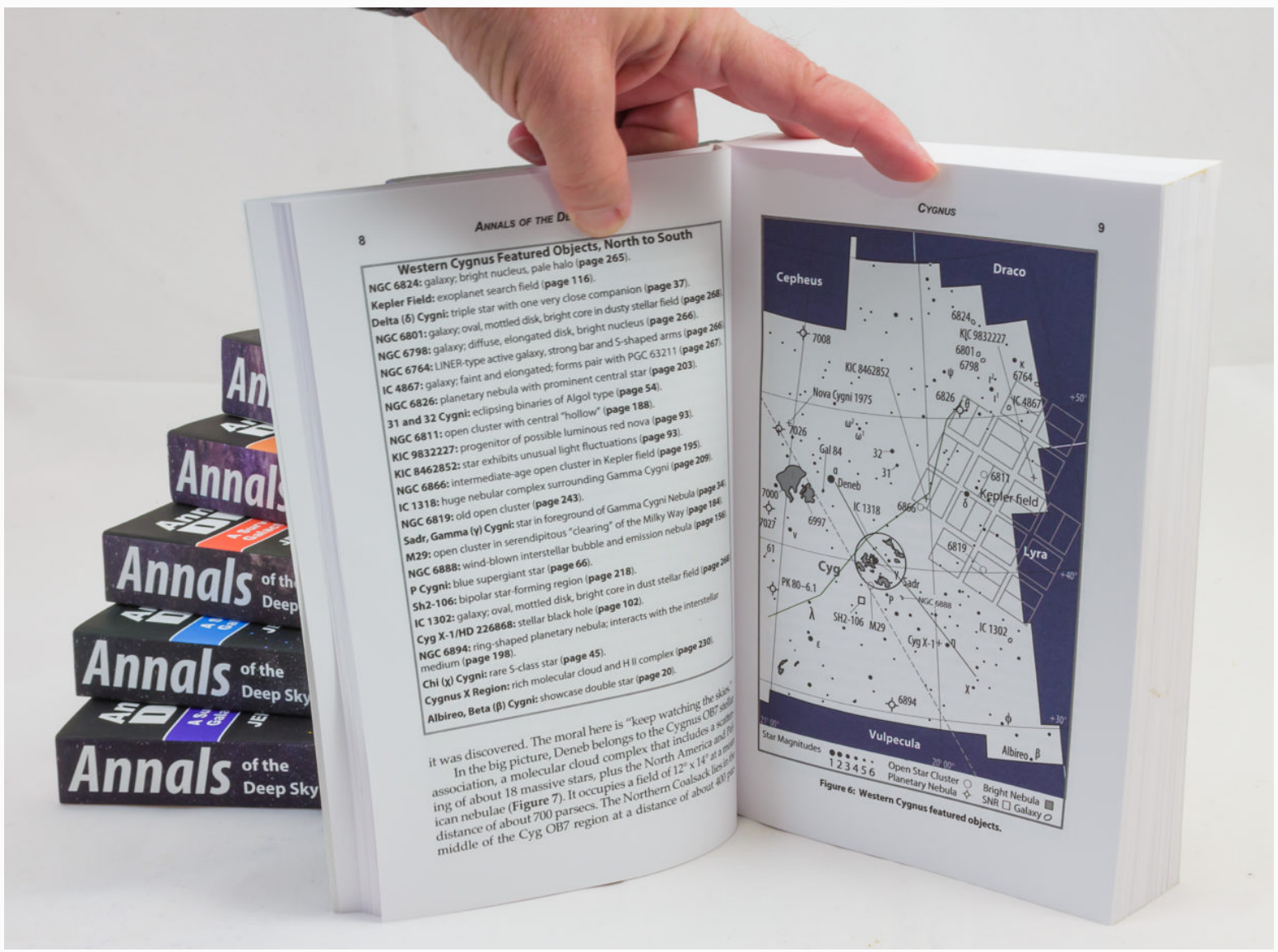




Each constellation is accompanied by charts showing its location in the sky, and where on Earth it is best seen and when. Credit: Alan Dyer

For example, describing the 43 objects in Cygnus, the biggest constellation for page count so far, takes 268 pages of the 440-page Volume 8. The North America Nebula alone gets 20 pages. Diminutive Delphinus gets 51 pages for descriptions of its 23 targets, more than I suspect most observers know exist in this little constellation. In Volume 4, even lowly Canis Minor gets a tally of 11 objects over 30 pages.

While most targets in a constellation are ones amateurs can observe or photograph, *Annals* also dives into the details of objects of purely intellectual interest, such as the black hole Cygnus X-1 and the news-making KIC 8462852, aka Boyajian's Star, which prompted speculation about aliens.

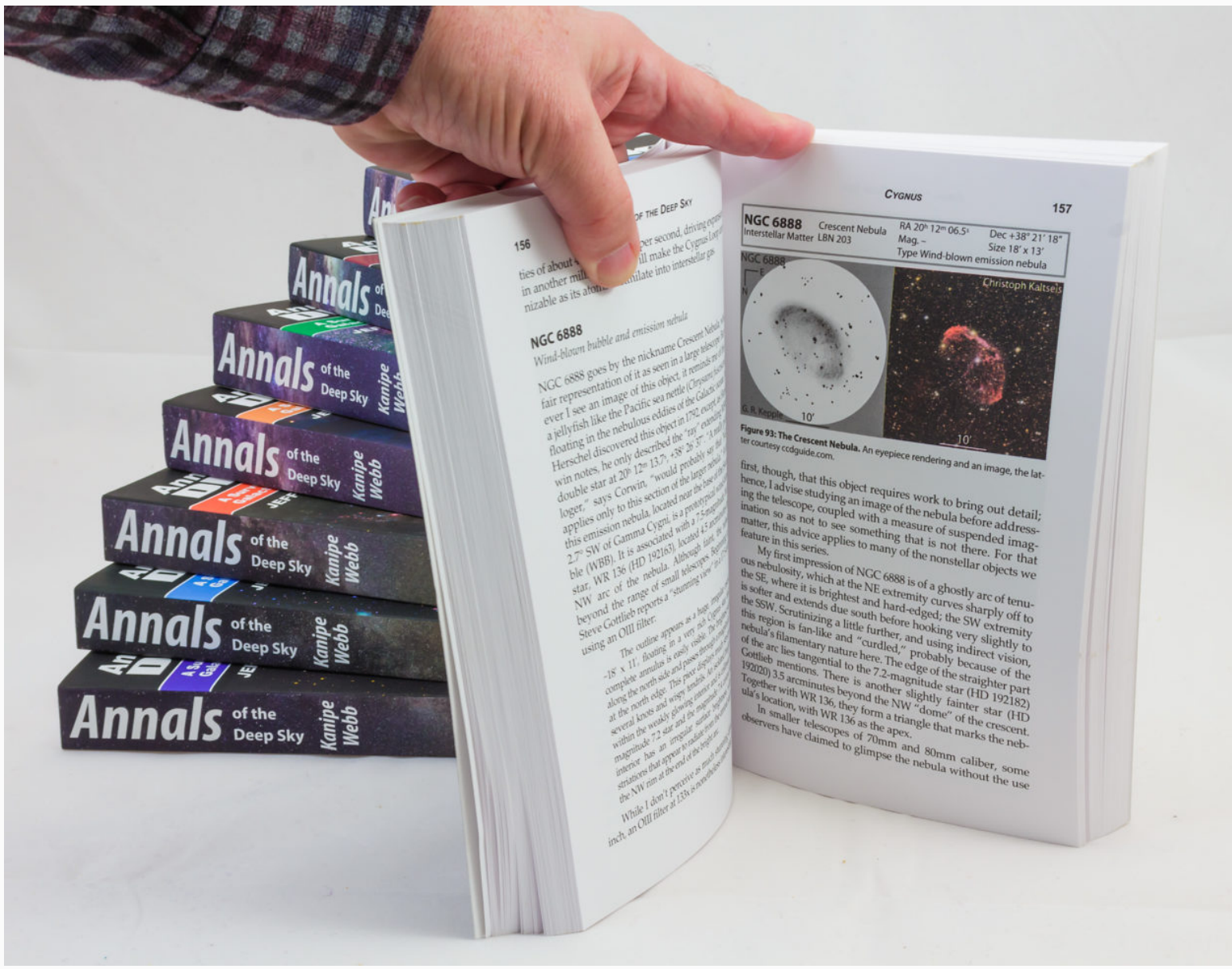


Star maps show the locations of the objects discussed, but they are for orienting the reader. *Annals* is not a work you are likely to use at the telescope. Credit: Alan Dyer

As in *Burnham's*, each constellation's roster of targets begins with descriptions of its bright stars, and notable double and variable stars. Galactic objects (star clusters and nebulas) within our Milky Way follow. Then each constellation section ends with details of extragalactic objects – the galaxies and galaxy clusters within its boundaries. Within

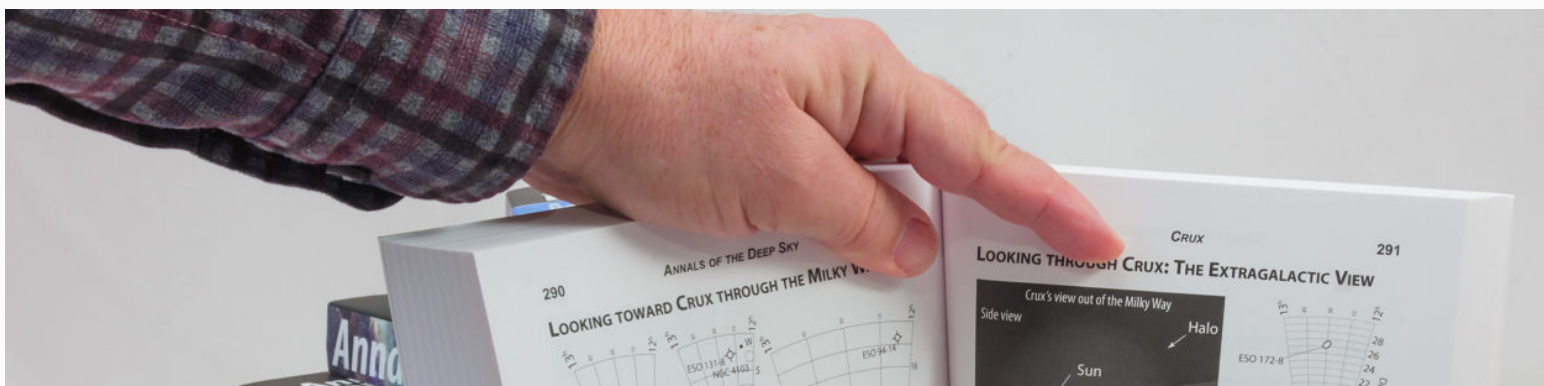
each class, objects are listed – unusually – in order of distance, not right ascension or catalog number. Detailed contents pages and an index in each volume aid in finding the write-ups for objects.

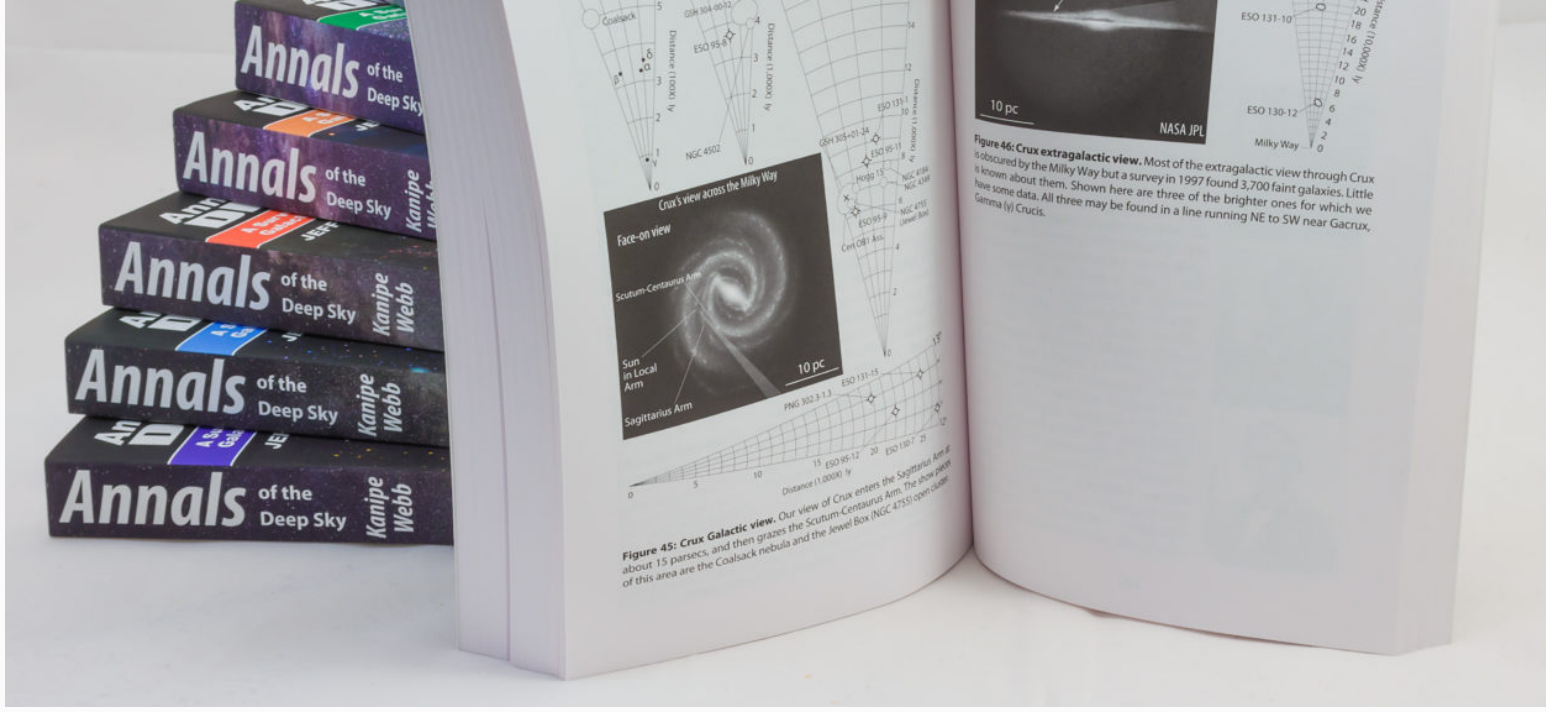
Each object's description is rich in up-to-date science, supplemented by extended essays, such as on planetary nebulas in Volume 1, a 70-page glossary in Volume 2, and on extra-solar planets in Volume 3. Volume 1 begins with a 120-page introduction to the astrophysics and classification schemes of stars and deep-sky objects.



Most objects are accompanied by sketches and amateur photos to both preview what to expect to see at the eyepiece and show the sizes of objects on camera sensors. Credit: Alan Dyer

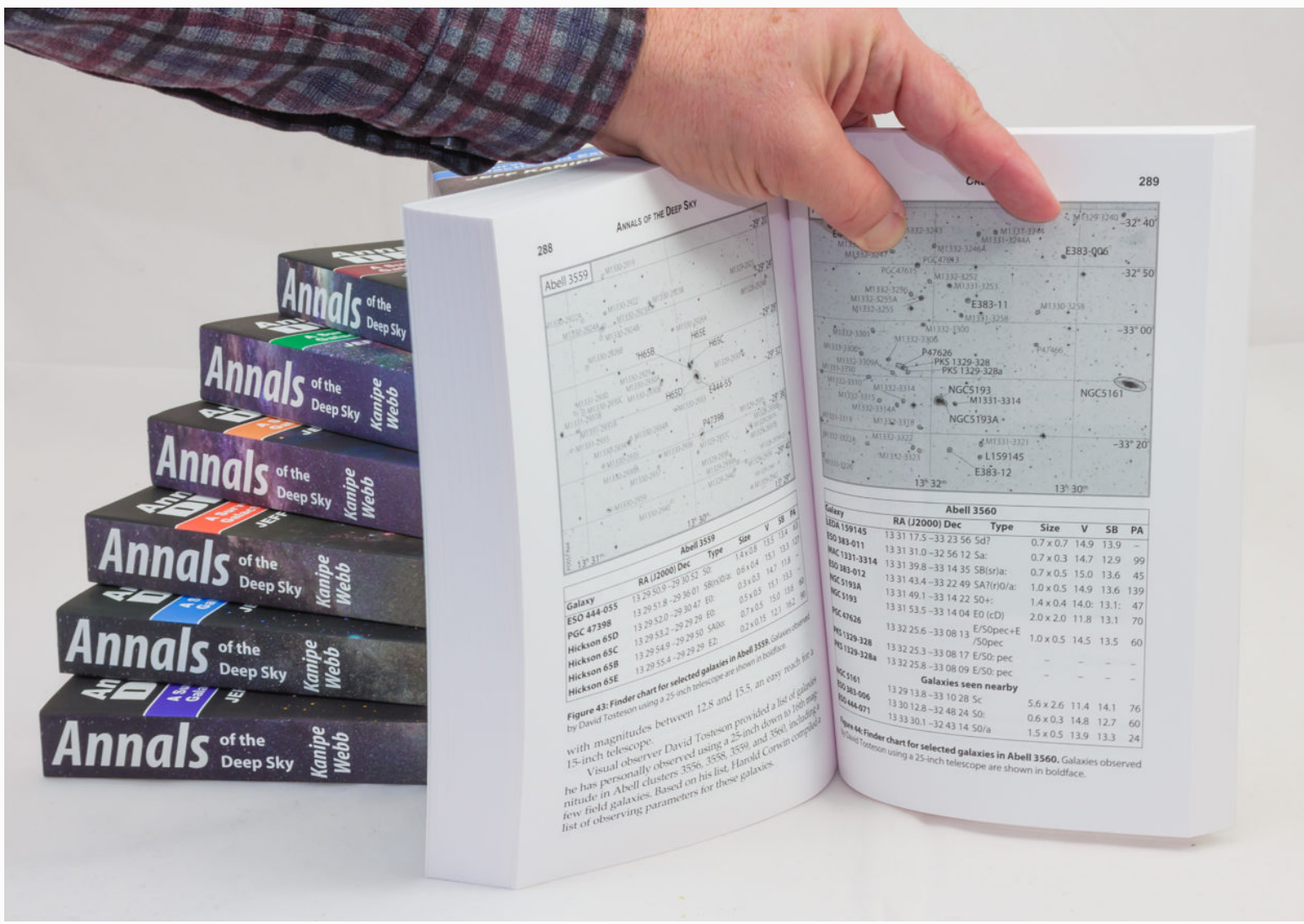
Throughout *Annals*, the authors provide many profiles of astronomers, such as those responsible for the object catalogs we draw upon, and the historical observations that led to our current knowledge. Reading through these essays will heighten your expertise, no matter how experienced an observer you might be. For example, Volume 7 contains 90 pages devoted to William and Caroline Herschel, and their "Great Sweep" of April 11, 1785.





Unique to *Annals* are illustrations showing the constellation (Crux here) in 3D space depicting how far away objects are in a series of pie-shaped charts. Credit: Alan Dyer

In every volume and on almost every page you'll encounter jewels of new information, certainly ones I hadn't encountered before. Do you know who popularized the term "deep-sky" and when? (Volume 1, page 73) Or how an Icelandic volcano hampered Herschel's observations of the Whirlpool Galaxy? (Volume 3, page 189)



Some constellations have supplementary finder charts for complex areas, such as these showing galaxy clusters in Crux. Credit: Alan Dyer

While the authors include plenty of observing tips and eyepiece descriptions to aid visual observers, astrophotographers shouldn't expect to find technical advice on the best exposure times, focal lengths, and filters to use.

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While *Annals* works well as a guide to the best, if not the majority of targets each constellation has to offer, its strength is providing a wealth of information to help you partake in what the authors call “contemplative observing” by providing the background history and modern astrophysics to better appreciate what you are seeing and shooting.

The addition of color illustrations in Volume 8 is used to advantage in discussions of historic double star observers and their sometimes fanciful descriptions of star colors. Credit: Alan Dyer

Annals of the Deep Sky is an encyclopedic work I consider an essential addition to the library of any avid and advanced deep-sky observer or astrophotographer. After being out of circulation for a time in 2021 when the original publisher Willmann-Bell closed, I am pleased to see its volumes available once again through *Sky & Telescope*. *Annals* is the new *Burnham’s* and, as we did in the 1970s, I now look forward to each new authoritative volume.

Plus: Superbly written and researched compendium of up-to-date stellar and deep-sky object information

Minus: Completing the sky coverage up to Vulpecula will take many more volumes … and years!

Retail: $25.95 each for Volumes 1 through 7; $34.95 for Volume 8 (all trade paperback)

Website: https://shopatsky.com/collections/willmann-bell

About Alan Dyer

http://www.amazingsky.com

Alan Dyer is an astrophotographer and astronomy author based in Alberta, Canada. His website at www.amazingsky.com has galleries of his images, plus links to his product review blog posts, video tutorials, and ebooks on astrophotography.

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