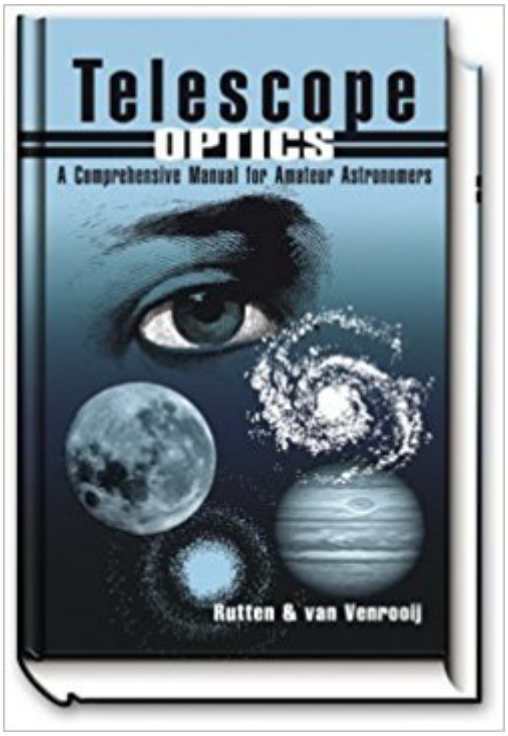
Telescope Optics : A Comprehensive Manual For Amateur Astronomers



Synopsis

Explains why there are so many different kinds of telescopes and what each type has to offer

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Customer Reviews

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I’m an optical engineer. I’ve been seeing references to this book for some time. It really is excellent. Well written and very accessible.

Beware! This may look like a book for amateurs but it is a tough read, a technical read--and I say this from the perspective a someone who has had two years of Calculus...of which I understood at least 20 percent. Maybe it should called a good book for amateur engineers or mathematicians. The drawings, diagrams and presentation are very crisp and legible, and seem to reduce complex information to simple graphics. But each diagram and graph contains a semester of college concepts that, while easy to view, require a great deal of reflection to fully grasp. I would love to understand it all, but sort of lose focus midway through each page and soon find myself falling into a deep sleep.

Very nice book on basic optics. A colleague recommended it as a primer, stating telescope optics were easier to understand than camera, microscope, or other domains. So far, this has proven to be the case.

This book is the reference! It’s Rule!

Famous book, good price, quickly shipped, no issues.

There was a time once when amateur astronomers had exposure to only a few different kinds of telescopes--mostly simple achromatic refractors, which comprise just two lenses cemented together (plus an eyepiece), and Newtonian reflectors, which include a mirror plus the eyepiece. Many, possibly most, of these amateurs also made their own optics, and as a result, they knew most of what there was to know about these designs.Nowadays, it’s quite different. Not only are there vastly more types of telescopes, but most amateurs now buy telescopes; telescope building is a diminishing part of amateur astronomy, and people make their own telescopes out of desire, not necessity. It’s harder than ever now for amateurs to really know about optical designs in breadth and depth.Into this breach step Rutten and van Venrooij, two Dutch astronomers who wanted to know more about optics but found that resources were generally unavailable to amateurs. So, they wrote their own. Telescope Optics is a compendium of optical information, geared to the intermediate to advanced amateur. Like Gaul, it can be divided into three parts: Chapters 1 through 4 discuss optical principles; Chapters 5 through 16 apply those principles to various telescope and accessory designs; and Chapters 17 through 22 cover evaluation and design.The manner of the text is generally scholarly but informal. Although optical principles are explained from the fundamentals, the authors still assume a certain level of comfort with high school mathematics and analytical exposition. In particular, it helps if the reader can easily digest information in two-dimensional graphs. This can make the book somewhat imposing for those readers who really just want to know, at a high level, what makes their own telescope tick.For those readers capable of making their way through the analysis, however, the authors clearly and comprehensively explain the workings of several telescope and camera designs, and discuss in brief the quirks of at least half a dozen more. The compromises of each design are detailed to the level of so-called "third-order aberrations

Telescope Optics is a comprehensive, educational and practical manual for beginners and advanced amateur opticians and astronomers. It is probably one of the best overall sources of information on basic optics, optical instruments and their prformance. The book comes with a DOS-based computer program that allows users to design their own systems and evaluate

theoretical or existing optical configurations. Telescope Optics fills the gap between simple amateur telescope and optics manuals and professional literature. The book is due for a second edition, as well as an upgraded optical design and analysis program suitable for Windows-driven computer environment. Although Telescope Optics came with some errata sheets, the book has notable omissions and errors, summarized below. - Page 5, line 19. No mention is made of either F. B. Wright (1935) or Y. VÃƒÂ¤isÃƒÂ¤lÃƒÂ¤ (1936), whose modifications to the original Schmidt camera design resulted in more compact, flat-field instruments suitable for visual as well as photographic work. - Page 88, line 5. Credit is given to K. Slevogt (October, 1942) for developing a modification to the famous Baker camera. His work was preceeded, however, by C. R. Burch (April, 1942) in Monthly Notices of the Royal Astronomical Society (Vol. 102, No. 3, "Design of Approximately Flat-fielded System, with Two Spherical Mirrors and One Plate"). - Page 127, line3. The book incorrectly relates R. J. Lurie's work with that of J. L. Houghton. Houghton (U.S. Patent No 2,350,112, May 30, 1944) proposed a two-element all-spherical corrector used in conjunction with a spherical mirror for a Newtonian-like configuration. The system is aplanatic (free of coma and spherical aberration). Lurie (Journal of the Optical Society of America, March 1975, p. 261) proposes two-element all-spherical correctors in conjunction with aspheric (conic-section) mirrors resulting in a fully systems that are fully anastigmatic - free of coma, spherical aberration and astigmatism. The two systems are not interchangable and only bear superficial resemblence. The value of Lurie's configurations is in superior optical performance, which in all aspects except distortion rival that of a true Schmidt camera, and in the applicability of converting smaller Newtonian configurations into first-class astrographs. - Page 145, Section 14.4, the book omits to mention that Ross-type correctors can be used in conjunction with hyperboloidal primary mirrors, resulting in anastigmatic flat-field astrographs (offered by Takahashi of Japan). Since full-aperture correctors are not practical for large Newtonian-like configurations, vast number of amateurs with telescopes larger than 10-inches in diameter could convert their instruments to high quality astrocameras. Suitable correctors, other than the Ross, have also been investigated and implemented on existing observatory Newtonian systems. Availability of their design and analysis would be of paramount importance to serious amateur observers and astrophotographers. Mladen K. Vranjican

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