Autoguider Reviews

Written by one of the astronomers who 'lived the dream' of working there this book is a restrospectively expanded diary featuring the 'birth and long life' of what was a truely innovative telescope. Based on input received from people involved in its planning, building, operation, and many scientists who observed with it, the author tells this success story of The United Kingdom Infrared Telescope (UKIRT). Conceived in the mid 1970's as a cheap and cheerful light-bucket for the newly emerging field of infrared astronomy it has re-invented itself once a decade to remain at the forefront of infrared astronomy for more than 30 years. Even in 2012 / 2013, when ironically it faced almost certain closure, it remained one of the most scientifically productive telescopes in the world. Everybody, including amateur and professional astronomers, interested in real astronomy projects will enjoy reading that story and meet (again) the persons who lived it.

This guide provides useful insight for first-time telescope buyers as well as experienced amateurs. It examines the advantages and disadvantages of different types of telescopes, mountings, and accessories-ranging from refractors and reflectors to computer controlled drives and CCD cameras. The author also covers observation techniques, photographic equipment,

astronomical software, as well as equipment care and maintenance.
The Deep-sky Imaging Primer covers almost everything you need to know to create beautiful deep-sky images with a DSLR or an astronomical CCD camera. This textbook is printed in full-color, with over 90,000 words and nearly 200 images and illustrations. The book does not shy away from the technical details where they are important, but the focus is on practical advice for the amateur. Both narrowband and standard color imaging techniques are covered. Exercise questions are provided to reinforce the material being covered, and the final chapters contain two start-to-finish image processing examples. The book is structured in three sections: The first section, Understanding Images, covers with the fundamentals of signal and noise and how electronic imaging sensors work, laying the foundation for understanding the "whys" behind many equipment and processing choices. The second section, Acquiring Images, reviews all of the equipment involved in imaging--cameras, mounts, and optics--and how to use them. Focusing and autoguiding are covered in detail, as are the critical concepts of image scale and sampling. The third section is about Processing Images. Calibration and post-processing are explained with numerous examples. The chapters break the image processing workflow into phases, with the tools and techniques for each thoroughly covered. If you've ever looked at beautiful deep-sky images and thought, "I wish I could do that," then

this book is for you!
Jena Review
Observing Comets
Comets and How to Observe Them
Proceedings of the Sixteenth General Assembly Grenoble 1976
The Astrophotography Manual
So You Want a Meade LX Telescope!

An Amateur's Guide to Observing and Imaging the Heavens is a highly comprehensive guidebook that bridges the gap between the beginners' and hobbyists' books and the many specialised and subject-specific texts for more advanced amateur astronomers. Written by an experienced astronomer and educator, the book is a one-stop reference providing extensive information and advice about observing and imaging equipment, with detailed examples showing how best to use them. In addition to providing in-depth knowledge about every type of astronomical telescope and highlighting their strengths and weaknesses, two chapters offer advice on making visual observations of the Sun, Moon, planets, stars and galaxies. All types of modern astronomical imaging are covered, with step-by-step details given on the use of DSLRs and web-cams for solar, lunar and planetary imaging and the use of DSLRs and cooled CCD

cameras for deep sky imaging.

Today's photographic equipment allows amateurs to take pictures of the stars that far surpass images taken just a few decades ago by even the largest observatories-and this book will teach you how. Author and world-renowned astrophotographer Thierry Legault teaches the art and techniques of astrophotography: from simple camera-on-tripod night-scene imaging of constellations, star trails, eclipses, artificial satellites, and polar auroras to more intensive astrophotography using specialized equipment for lunar, planetary, solar, and deep-sky imaging. Legault shares advice on equipment and guides you through techniques to capture and process your images to achieve spectacular results. Astrophotography provides the most thorough treatment of the topic available. This large-format, richly illustrated book is intended for all sky enthusiasts-newcomers and veterans alike. Learn how to: Select the most useful equipment: cameras, adapters, filters, focal reducers/extenders, field correctors, and guide telescopes Set up your camera (digital, video, or CCD) and your lens or telescope for optimal results Plan your observing sessions Mount the camera on your telescope and focus it for razor-sharp images Polar-align your equatorial mount and improve tracking for pin-point star images Make celestial time-lapse videos Calculate the shooting parameters: focal length and ratio, field of view,

exposure time, etc. Combine multiples exposures to reveal faint galaxies, nebulae details, elusive planetary structures, and tiny lunar craters Adjust contrast, brightness, light curves, and colors Postprocess your images to fix defects such as vignetting, dust shadows, hot pixels, uneven background, and noise Identify problems with your images and improve your results

Near-infrared astronomy has become one of the most rapidly developing branches in modern astrophysics. Innovative observing techniques, near-infrared detectors with quantum efficiencies in excess of 90%, highly specialised instruments as well as advanced data reduction techniques have allowed major breakthroughs in various areas like exoplanets, star-forming regions, the supermassive black hole in the Galactic center, and the high-redshift Universe. In this book, the reader will be introduced to the basic concepts of how to prepare near-infrared observations with maximized scientific return. Equal weight is given to all aspects of the data reduction for both - imaging and spectroscopy. Information is also provided on the state of the art instrumentation available and planned, on detector technology or the physics of the atmosphere, all of which influence the preparation and execution of observations and data reduction techniques. The beginner but also the expert will find a lot of information in compact form which is otherwise widely dispersed across the internet or other

sources.

How to Capture the Stars with a CCD Camera in Your Own Backyard

Transactions of the International Astronomical Union

A Guide to Capturing the Cosmos

Instrumentation in Astronomy

Using Sequence Generator Pro and Friends

Astrophotography with Affordable Equipment and Software

There are many books covering different facets of astrophotography, but few of them contain all the necessary steps for beginners in one accessible place. Astrophotography is Easy! fills that void, serving as a guide to anybody interested in the subject but starting totally from scratch. Assuming no prior experience, the author runs through the basics for how to take astrophotos using just a camera—including cell phones and tablets—as well as a telescope and more sophisticated equipment. The book includes proven techniques, checklists, safety guidelines, troubleshooting tips, and more. Each chapter builds upon the last, allowing readers to master basic techniques before moving on to more challenging material. Also included is a comprehensive list of additional books and resources on a variety of topics so readers can continue expanding their skills. Astrophotography Is Easy! doesn't simply teach you the basic skills for becoming an astrophotographer: it provides you with the foundations you will need for a lifelong pursuit.

Astronomy and Astrophysics Abstracts aims to present a comprehensive documen tation of the literature concerning all aspects of astronomy, astrophysics, and their border fields. It is devoted to the recording, summarizing, and indexing of the relevant publications throughout the world. Astronomy and Astrophysics Abstracts is prepared by a special department of the Astronomisches Rechen-Institut under the auspices of the International Astronomical Union. Volume 43 records literature published in 1987 and received before August 15, 1987. Some older documents which we received late and which are not surveyed in earlier volumes are included too. We acknowledge with thanks contributions of our colleagues all over the world. We also express our gratitude to all organiza tions, observatories, and publishers which provide us with complimentary copies of their publications. Starting with Volume 33, all the recording, correction, and data processing work was done by means of computers. The recording was done by our technical staff members Ms. Helga Ballmann, Ms. Beate Gobel, Ms. Monika Kohl, Ms. Sylvia Matyssek, Ms. Doris Schmitz-Braunstein, Ms. Utta-Barbara Stegemann. Mr. Jochen Heidt and Mr. Kristopher Polzine supported our task by careful proof reading. It is a pleasure to thank them all for their encouragement. Heidelberg, October 1987 The Editors Contents Introduction . . . . . 1 Concordance Relation: PHYS-AAA 3 Abbreviations 5 Periodicals, Proceedings, Books, Activities 001 Periodicals . . . . . 10 002 Bibliographical Publications, Documentation, Catalogues, Data Bases 50 003 Books ..... .

This book is based around the author's beautiful and sometimes awe-inspiring color images and mosaics of deep-sky objects. The book describes how similar "Hubble class" images can be created by amateur astronomers in their back garden using commercially available telescopes and CCD cameras. Subsequent processing and image enhancement in the "electronic darkroom" is covered in detail as well. A range of telescopes and equipment is considered, from the author's 11-inch with Hyperstar camera, down to more affordable instruments. Appendices provide links to free software – not available from a single source – and are themselves an invaluable resource.

An Amateur's Guide to Observing and Imaging the Heavens

Digital Astrophotography

First Light and Beyond

Digital SLR Astrophotography

The Life Story of an Infrared Telescope

Observational Astrophysics

This book is written for beginning to intermediate CCD astrophotographers. It is a complete reference on every aspect of CCD imaging, from selecting equipment to advanced processing techniques.

At first glance, the challenge of astrophotography may appear daunting. But not only are spectacular results possible, they are easy to learn with the step-by-step

instructions provided in this handy resource, which shows amateurs how to produce images to rival a professional observatory.

The International Scientific Spring Meeting of the Astronomische Ge sellschaft (AG) held at Bamberg in April 1991 was devoted to "Vari abilities in Stars and Galaxies". Time-dependent phenomena are observed in a wide range of as tronomical objects. They are caused by different physical mechanisms (for example by pulsation, by accretion, or by dramatic eruptive events in connection with mass outflow) producing observable intensity vari ations through all wavelengths. Many of the papers in this volume are concerned with galactic stars showing such behaviour (for ex ample cataclysmic variables, symbiotic stars, luminous blue variables (LBVs) and novae). Intrinsic variations of the, magnetic field struc ture on observable time scales are, for instance, a peculiarity of cool, solar-like stars and represent a useful tool to study differential rotation and cycles of activity. Recent results on the investigation of gas motions in the inner regions of the Milky Way system, a study of the bipolar galaxy M 82, observations of variable extragalactic radio sources, the variability of emission lines in active galactic nuclei (AGN) as well as continuum variations of quasars and AGN are discussed by several authors. The yearbook series Reviews in Modern Astronomy of the AG to bring the scientific events of the was established in 1988 in order meetings of the society to the attention

of the worldwide astronomical community.
Phase C, HIRES Core
Annual Review of Astronomy and Astrophysics
The NexStar Evolution and SkyPortal User's Guide
Astronomical Data Analysis Software and Systems
A Practical and Scientific Approach to Deep Sky Imaging

This book provides a thorough introduction to and exploration of deep sky astrophotography for the digital photographer. With over 280 images, graphs, and tables, this introductory book uses a progressive and practical style to teach readers how to image the night sky using existing, affordable equipment. The book opens with a brief astronomy primer, followed by chapters that build progressively to explain the challenges, offer solutions, and provide invaluable information on equipment choice through image capture, calibration, and processing in affordable software. The book's focus ranges from how to image sweeping vistas and star trails using only a camera body, lens and tripod, to more advanced methods suitable for imaging galaxies,

clusters, nebulae, and stars. Other features of the book include: Real-world assignments showing how and when to use certain tools and how to overcome challenges and setbacks Practical construction projects Evaluations of the most recent developments in affordable hardware and software Exploration on how sensor performance and light pollution relate to image quality and exposure planning Ground-breaking practical chapters on lucky imaging and choosing and using the latest CMOS cameras Written in an accessible, easy to follow format, this comprehensive guide equips readers with all the necessary skills to progress from photographer to astrophotographer.

In the last few years, digital SLR cameras have taken the astrophotography world by storm. It is now easier to photograph the stars than ever before! They are compact and portable, flexible to adapt with different lenses and for telescope use, and above all DSLR cameras are easy and enjoyable to use. In this concise guide, experienced astrophotography expert Michael Covington outlines the

simple, enduring basics that will enable you to get started, and help you get the most from your equipment. He covers a wide selection of equipment, simple and advanced projects, technical considerations and image processing techniques. Unlike other astrophotography books, this one focuses specifically on DSLR cameras, not astronomical CCDs, non-DSLR digital cameras, or film. This guide is ideal for astrophotographers who wish to develop their skills using DSLR cameras and as a friendly introduction to amateur astronomers or photographers curious about photographing the night sky.

The book that taught thousands of people about astrophotography has been completely revised and updated in this second edition. It covers everything you need to know to capture stunning images of deep-sky objects with a DSLR or CCD camera: The fundamental concepts of imaging and their impact on the final image How to pick a telescope and camera How to get set up and take the images Where and when to find the best objects in the night sky How to process images

using Adobe Photoshop(R) and PixInsight(R) Start-to-finish examples of image processing Full-color with over 300 illustrations.

25-28 August, 2002, Waikoloa, Hawaii, USA

The New CCD Astronomy

Report of the Astronomer Royal for Scotland for the Year Ending ...

Astrophotography is Easy!

The Deep-Sky Imaging Primer

Report of the Astronomer Royal for Scotland

These are the proceedings of an international meeting hosted by the Royal Observatory, Edinburgh, to commemorate the 30th anniversary of the dedication of the UKIRT, the United Kingdom InfraRed Telescope. The volume comprises 31 professional level papers. The first part of the book has 10 thorough reviews of the conception, design and build of the telescope, as we as accounts of some its key instruments such as IRCAM (the common-user infrared camera), CGS4 (the fourth Cooled Grating Spectrometer) and the Wide Field Camera. The second part o the book comprises 14 reviews of scientific achievements during its twenty years of visitor mode operations. The final part of the book is a series of 7 reviews of the results from the multiple surveys being done as part of UKIDSS (UKIRT Infrared Deep Sky Survey). The authors are all

experts in their respective fields, for example instrument scientists, operations staff and leading astronomers.

Amateur astronomy has changed beyond recognition in less than two decades. The reason is, o course, technology. Affordable high-quality telescopes, computer-controlled 'go to' mountings, autoguiders, CCD cameras, video, and (as always) computers and the Internet, are just a few of the advances that have revolutionized astronomy for the twenty-first century. Martin Mobberley first looks at the basics before going into an in-depth study of what's available commercially. He then moves on to the revolutionary possibilities that are open to amateurs, from imaging, through spectroscopy and photometry, to patrolling for near-earth objects - the search for comets and asteroids that may come close to, or even hit, the earth. The New Amateur Astronomer is a road map of the new astronomy, equally suitable for newcomers who want an introduction, or old hands who need to keep abreast of innovations. From the reviews: "This is one of several dozen books in Patrick Moore's "Practical Astronomy" series. Amid this large family, Mobberley finds his niche: the beginning high-tech amateur. The book's first half discusses equipment: computer-driven telescopes, CCD cameras, imaging processing software etc. This market is changing every bit as rapidly as the computer world, so these details will be current for only a year or two. The rest of the book offers an overview of scientific projects that serious amateurs are carrying out these days. Throughout, basic formulas and technical terms are provided as needed, without formal derivations. An appendix with useful references and Web sites is also included. Readers will need more than this book if they are considering a

plunge into high-tech amateur astronomy, but it certainly will whet their appetites. Mobberley's most valuable advice will save the book's owner many times its cover price: buy a quality telescope from a reputable dealer and install it in a simple shelter so it can be used with as little set-up time as possible. A poor purchase choice and the hassle of setting up are why most fancy telescopes gather dust in their owners' dens. Summing Up: Highly recommended. General readers; lower- and upper-division undergraduates."(T. D. Oswalt, CHOICE, March 2005)
This book serves as a comprehensive guide for using a Nexstar Evolution mount with WiFi SkyPortal control, walking the reader through the process for aligning and operating the system from a tablet or smartphone. The next generation Go-To mount from Celestron, this is compatible not only with the Nextstar Evolution but also with older mounts. It is the ideal resource for anyone who owns, or is thinking of owning, a Nexstar Evolution telescope, or adapting their existing Celestron mount. Pros and cons of the system are thoroughly covered with a critical depth that addresses any possible question by users. Beginning with a brief history of Go-To telescopes and the genesis of this still new technology, the author covers every aspect of the newly expanding capability in observing. This includes the associated Sky Portal smartphone and tablet application, the transition from the original Nexstar GoTo system to the new SkyPortal system, the use of the Sky Portal application with its Sky Safari 4 basic software and Celestron WiFi adaptations, and discussions on the use of SkyPortal application using the Celestron adapter on older Celestron mounts. Comments and recommendations for equipment enable the reader to successfully use and appreciate the new WiFi capability without becoming

overwhelmed. Extensively illustrated using actual screenshots from the program interface, this is the only guide to the Nextstar SkyPortal an observer will need.

The Scientific Achievement of the United Kingdom InfraRed Telescope

Literature 1987, Part 1

A Photographer's Guide to Deep-Sky Imaging

Thirty Years of Astronomical Discovery with UKIRT

Making Beautiful Deep-Sky Images

Capturing the Universe

Comets have inspired wonder, excitement and even fear ever since they were first observed. But they are important members of the solar system, that contain material from early in the life of the system, held in deep-freeze. This makes them key in our understanding of the formation and evolution of many Solar System bodies. Recent ground- and space-based observations have changed much in our understanding of comets. Comets, and How to Observe Them gives a summary of our current knowledge and describes how amateur astronomers can contribute to the body of scientific knowledge of comets. This book contains many practical examples of how to construct comet light-curves, measure how fast a comet's coma expands, and determine the rotation period of the nucleus. All these examples are illustrated with drawings and photographs. Because of their unpredictable nature comets are always interesting and sometime spectacular objects to observe and image. The second part of the book therefore takes the reader through the

key observing techniques that can be used with commercially available modern observing equipment, from basic observations to more scientific measurements.

State-of-the-art and future technology in stellar photometry in a comprehensive and timely review.

The General Assemblies of the International Astronomical Union are landmarks in the life of the world-wide astronomical community, as they review, at triennial intervals, the progress made in this scientific field, promulgate the most spect acular astronomical achievements, formulate scientific programmes for the years to come and, last but not least, deal with the administration and finances of the IAU. The Reports on Astronomy 1976, published as Transactions XVIA (in 3 volumes) before the XVlth General Assembly, are a synopsis of the work done in astronomy from 1973 to 1975. The volume "Highlights of Astronomy , as presented at the XVlth General As sembly of the IAU in Grenoble, 1976" includes some selected scientific topics, and will appear in the first half of 1977. Apart from the Invited Discourses and the Proceedings of the seven Joint Discussions, the Highlights volume No.4 con tairsthe proceedings of two Joint Commissions Meetings.

Imaging with SGP, PHD2, and Related Software

Basics for Beginners

Reviews in Modern Astronomy

IAU Colloquium 136

The Deep-sky Imaging Primer

The New Amateur Astronomer

Since comet Shoemaker-Levy collided with the planet Jupiter with stupendous force in 1994 there has been an upsurge of amateur interest in comets. Most comets are first discovered by amateur astronomers because so there are many amateurs looking for them, and techniques and instruments have improved dramatically in the past few years. This comprehensive book (with an accompanying CD-ROM) is at once a "primer" for comet hunters and a text for advanced amateurs and will thus appeal to a wide audience of amateur astronomers

Computers and Astronomy Perhaps every generation of astronomers believes that their telescopes are the best that have ever been. They are surely all correct! The great leap of our time is that computer-designed and machined parts have led to more accurately made com- nents that give the astronomer ever better views. The manual skills of the craftsman mirror grinder have been transformed into the new-age skills of the programmer and the machine maker. (The new products did not end the work of craftsman te- scope makers, though. Many highly skilled amateur/professional opticians cont- ued to produce good-quality

mirrors that are still seen today.) Amateur-priced telescopes are now capable of highly accurate tracking and computer control that were once only the province of professionals. This has greatly increased the p- sibilities of serious astronomy projects for which tailor-made software has been developed. Add a CCD camera to these improved telescopes (see Chap. 3), and you bring a whole new dimension to your astronomy (see Fig. 1. 1). Look Before You Leap! But first, a word of caution. Unless you are already familiar with astronomy and basic telescopes, it is not wise to start spending large amounts of money on a we- featured telescope. Such an instrument might otherwise be subsequently abandoned due to a perceived overcomplexity coupled with a waning interest.

Combining a critical account of observational methods (telescopes and instrumentation) with a lucid description of the Universe, including stars, galaxies and cosmology, Smith provides a comprehensive introduction to the whole of modern astrophysics beyond the solar system. The first half describes the techniques used by astronomers to observe the Universe: optical telescopes and instruments are discussed in detail, but

observations at all wavelengths are covered, from radio to gamma-rays. After a short interlude describing the appearance of the sky at all wavelengths, the role of positional astronomy is highlighted. In the second half, a clear description is given of the contents of the Universe, including accounts of stellar evolution and cosmological models. Fully illustrated throughout, with exercises given in each chapter, this textbook provides a thorough introduction to astrophysics for all physics undergraduates, and a valuable background for physics graduates turning to research in astronomy.

HIRES, a High Resolution Echelle Spectrometer for the Keck Ten-meter Telescope

Astrophotography

Making a Success of Astronomical Observing

Information Bulletin

Stellar Photometry: Current Techniques and Future Developments

Astronomy in the Near-Infrared - Observing Strategies and Data Reduction Techniques

This guide is specifically aimed at those who are using—or want to use—Sequence Generator Pro. SGP is a “session

management" software package that controls the telescope, mount, camera, and ancillary equipment to target and secure images during a night of imaging astronomical objects. The book begins with a special tutorial to get up and running with SGP. With a comprehensive reference section, it takes the user in detail through the various aspects of user and equipment profiles, equipment definitions, the sequencer, and other essential elements of SGP. Finally, it focuses on how to get the most out of the ancillary programs—target databases, autoguiders, plate solvers, planetarium software, and other applications. Oftentimes, technical guides can end up being far denser than the processes they intend to explain. Many of the insights provided by SGP expert Alex McConahay are beyond what can be found in the official program documentation. In this book, the reader will find in-depth, yet straightforward practical advice on how to automate nightly astroimaging sessions with Sequence Generator Pro.

The Astrophotography Manual, Second Edition is for

photographers ready to move beyond standard SLR cameras and editing software to create beautiful images of nebulas, galaxies, clusters, and the stars. Beginning with a brief astronomy primer, this book takes readers through the full astrophotography process, from choosing and using equipment to image capture, calibration, and processing. This combination of technical background and hands-on approach brings the science down to earth, with practical methods to ensure success. This second edition now includes: Over 170 pages of new content within 22 new chapters, with 600 full-color illustrations. Covers a wide range of hardware, including mobile devices, remote control and new technologies. Further insights into leading software, including automation, Sequence Generator Pro and PixInsight Ground-breaking practical chapters on hardware and software as well as alternative astrophotography pursuits

This book offers a comprehensive introductory guide to "choosing and using" a series LXD55 or LXD75 computer-controlled ("goto") telescope, containing a wealth of

useful information for both beginners and more advanced practical amateur astronomers. The manufacturer’s manuals are not nearly detailed enough to be of real help to beginners. No other book offers advanced techniques for more experienced LXD series users.

Astronomical Equipment for Amateurs

Variabilities in Stars and Galaxies

Scientific and Technical Aerospace Reports

Instrument Design and Performance for Optical/infrared Ground-based Telescopes

How to Select and Use the LX200 and Other High-End Models

A User's Guide to the Meade LXD55 and LXD75 Telescopes

The New Amateur AstronomerSpringer Science & Business Media

Amateur astronomers who have been disappointed by the results of an observing session can take comfort in the guidance of this book, which advises how to still gain useful experience in seemingly "failed" nights at the telescope. In a world with imperfect seeing conditions, incredible observing sessions are often mixed with less inspiring ones, discouraging the amateur

observer. This book is designed to minimize subsequent disappointment for astronomers who encounter a few bad observing sessions, helping novice observers take something worthwhile away each and every time they go out under the night sky, regardless of the observations that were originally planned. Almost every observer remembers his first sight of ringed Saturn, hanging in the blackness of space. Practitioners agree that there is something special about visual observing. Real-time observations at the eyepiece can provide fleeting yet intense feelings that connect us with the universe in unique ways. But when expectations aren't met at the eyepiece, there are other ways to profit from the practice of astronomy. These rewards, though less showy, are well worth cultivating. This is a book that will help the reader see what constitutes a “successful” visual observing session. It explains the nature of the objects that the observer is seeing and advises how best to use their equipment. There are many hints and tips about how best to locate, recall, and record observations, including suggestions for trips to areas where there are dark skies and to public observatories. Amateur astronomy is a journey from the

urban backyard all the way to dark rural skies, and with this guide the journey can be smooth.