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FEDERATION OF ASTRONOMICAL SOCIETIES

<http://www.fedastro.org.uk>

Storm Clouds Gather over Jodrell Bank and the Future of UK Science in the Balance



I wonder what Nicholas Copernicus would make of the short-sightedness of the UK politicians!

According to reports in the press, and comments made by the RAS, it would seem that the whole future of the UK in astronomy and space is at risk.

On its website the RAS commented on the STFC's handling of the recent Comprehensive Spending Review "Mindful of very strong feelings in the entire astronomical community, the RAS

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IAYC 2008

44th International Astronomical Youth Camp
July 20th - August 9th Sayda, Germany

Every year, for 39 years now, the International Astronomical Youth Camp (IAYC) takes place somewhere in Europe. About seventy people from many different countries live together for three weeks. Aged between 16 and 24 yrs, they share the same interest - astronomy. The IAYC is different from most astronomical camps for two reasons: the international character and the fact that you do your own small research project, not just accepting facts but rather discovering them yourself. The IAYC is also not like a hotel where one follows a summer school or an astronomy course. Every participant with his or her own cultural background forms an important piece in the complex puzzle of camp life.

This years camp takes place in the "Jugendstehaus Mortelgrund", a youth hostel in the South East of Germany. The house is located about 2,5 km from Sayda a small village of about 2.300. It is a pleasant wooded area in the "Erzgebirge", about 45km from Dresden.

The IAYC is an international youth camp with participants from many different countries. The participants work for three weeks in one of the 8 working groups - on astronomy related projects. These projects are done in a working group of your choice and interest. These groups will be led by young scientists from the IAYC team and concentrate on a specific field in astronomy. This year these are: Ancient Astronomy, Astrogenises, Basics of Astronomy, Compact Objects, Extragalactic astrophysics, Observational Astronomy, Radio Astronomy and Imaging processing. Apart from the astro-program, there are many non-astro activities—e.g. group games, sport events, hiking tours and an excursion.

The accommodation for the IAYC 2008 is a very pleasant youth hostel called "Jugendstehaus Mortelgrund". The house offers plenty of space for all participants and working groups and there will also be a darkroom available. The remote location of the house promises excellent observing conditions and adjacent is a field used for observing.

The camp language will be English and so you should be able and willing to speak English throughout the camp although it is not necessary to speak English fluently. Anyone from 16 to 24 years old and able to communicate in English may participate in the IAYC 2008. The fee for accommodation, full board and the whole program, including the excursion, will be 550 Euro. For interested persons who are in the situation of not being able to pay the camp fee themselves, a limited number of grants is available.

More information about IAYC 2008 and the working groups is available on the website http://www.iayc.org/next_camp.php. There you can also download the application form.

If you have any questions or wish to order a free information booklet including an application form, please contact:

Ana Brajovic, Svetog Save 20/1a, 11000 Beograd, Serbia.

Tel.: +381 642 623182 e-mail: info@iayc.org

Editorial

After requests from some member societies it has been agreed to allow each member society to distribute the electronic version of the FAS Newsletter to their members. However this will be on the strict understanding that societies and/or their members do not distribute these to third parties.

It has also been decided to make some other changes. As you all will know this Newsletter has been produced and distributed in paper format as an 8-page document. Restricting this to 8 pages has created problems because, quite reasonably, each member society wants its information and forward programme included as well as news and articles and we have considered increasing the number of pages to cater for this demand.

However there are a number of problems with doing this. The size would have to increase in 4-page increments and just one such increment would increase printing costs by 50%. Furthermore the increase of four pages would increase the bulk by 50% and Eric would struggle with the larger parcels, etc (*I am sure his garage get pretty clogged up as it is*), not to mention the increase in postal costs.

Unless we could raise alternate funds any such increase of costs would have to be borne out of the membership fee. We could of course offset some of these costs by having, say, two of the four pages carrying advertising. But in turn, obtaining advertising would be a significant task and as all the FAS activities are done on a voluntary basis, this would require someone to volunteer to do this.

As a result of these considerations it has been decided to prepare the Newsletter in electronic format and let the size expand according to the information available, AND to trim this down to an eight page document for printing and distribution in paper form.

We realise that this is not entirely satisfactory but seems preferable to producing a larger paper version, incurring costs which would have to be passed on to member societies, something we are very reluctant to even consider.

Think of it this way, you will still get an 8-page Newsletter, but also the additional stuff electronically.

From the editing point of view, expanding the e-version allows me to include articles from the Newsletters of member societies, which I hope you will agree, will prove to be of interest to all—and it allows the use of colour. On this subject you will see in this edition I have used an article from Worthing AS and also received independently a number of articles from LYRA.

Please let me know your views. In particular I would like to hear what you think should be included or excluded - especially in the **Society Round Up** section.

By the time you read this, the second in our series of booklets entitled "The Stargazer's Starter Guide to", will be at the printers. As some of you will know the first one—"Buying your Telescope" was published some months ago and the new one is "Observing the Sky". More detailed information is given on page 5.

Please take note of the 'advert' on page 8 for volunteers to take on a. Honorary Secretary, b. PR/Advertising and c. Publications. If you have any interest in helping out on the Council of the FAS you will be very welcome. Of course if you have any experience in the field it would be of benefit, but do not let that put you off. With regard to the PR/Advertising, this would be to secure advertising for those publications like the Astrocalendar, which has about a dozen. Also it is envisaged that this person would also secure the exhibitors to the FAS Annual Convention. Come on—don't be shy, give us a call, or an email and ask any questions you like on the subject..

Frank Johns

(Continued from page 1)

Council expresses a lack of confidence in STFC's handling of the current funding crisis:" and then enumerated seven areas of concern.

The Times said: *"The network of seven giant astronomy dishes that has made this country a leader in the study of stars and planets is to be axed under plans to save £2.5 million a year. Scientists say that the funding proposals, drawn up by the Government's Science & Technology Facilities Council (STFC), will destroy Britain's leading role in radio astronomy."*

The STFC response of 03 March 2008 to the RAS, was also printed on the RAS website. However this statement gave the clear impression that we are 'stuck with it'. Many fine phrases are used, like **'The delivery of world-class science is at the heart of the Council's mission'**. However these have a distinctly hollow ring, and a cynic would probably make mention of 'spin' 'government' etc.

Again quoting from the RAS website: ***Noting the STFC reply, RAS President Professor Michael Rowan-Robinson welcomed the recognition that communication with the community needed to be significantly improved. He said, 'We need to see a culture change and look forward to learning, in detail, how STFC intends to engage with the community. I am pleased that STFC explicitly recognizes that an important part of its mission is to carry out world-class research in astronomy , particle and nuclear physics'. He added 'With a clear science strategy and transparent and expert peer review systems I hope the community will be able to recover its confidence in STFC'***

It would seem that the RAS President is not overly convinced that the funding will be reinstated either.

At the time of writing a Downing Street petition had been set up, and many of you may have heard of this and indeed responded. The link is as follows, and you are urged to have your say.

<http://petitions.pm.gov.uk/jodrellfunding/>

There is also a useful website, which is acting as a conduit for information on the latest situation. Please check this out, and contribute as far as you are able.

<http://www.hep.ucl.ac.uk/~markl/pp/index.shtml>

LETTERS

Dear Mr Johns

I hope this is the correct avenue, but would like if possible to be added to the list of speakers available for Astronomical Societies sent out to societies each year. A little about myself.

I own and manage a small observatory in Wiltshire, with a C11 for planetary imaging, Dual refractor setup for deep sky, and dual Coronado CaK and Hydrogen Alpha setup for solar imaging. I am the co author on a recent book on solar imaging, published by Springer Verlag "Observing the Sun with Coronado Telescopes", and regularly write for, and am about to start book reviews in Astronomy Now magazine. I am the technical liaison and website manager for Wiltshire Astronomical Society, and have worked recently and in the past as beta tester for Artemis cameras, Ambermile Engineering and others. I have won the Sky At Night Imaging Gallery image of the month, and have had images published almost every month in Astronomy Now, Sky at Night and Practical Astronomer.

I have a car, and live in Wiltshire near to Avebury, but work in West London, so am happy to give talks to societies from West London, up to areas like Milton Keynes, and down to Southampton. I regularly speak to our society, and also to other local societies and camera clubs, and in my professional work capacity have been the keynote speaker for Yamaha Corporation's product launches for 10 years.

I hope this information helps, and if you require any more details, or references, please do not hesitate to let me know.

Regards *Nick Howes* howesnickenhowes@aol.com

Thanks Nick. Would all Societies please add this to their Speakers List which were recently distributed? - Ed

Dear Editor

After a unanimous vote at our AGM after nearly three years of non-subscribed status we are aiming to move to subscribed status on 1st July. For this we have a keen committee one of which is a solicitor who is drawing up a constitution. This is far beyond my dreams when I started this off. Starting with 3 people we now have 36 people on board with new enquiries coming in regularly and we have managed to gain exclusive permission to use the Rollright stone circle as one of our observing sites – two of the trustees are also members. Last October we held a small public display which attracted a lot of interest particularly the talk by one of our members linking ancient & modern astronomy. Would an article about us and our plans for the future be of interest for inclusion in the newsletter and if so what would be its maximum number of words Thanks to the list in the handbook I have been able to contact two speakers for later in the year.

Regards

Robin Smitten, Chipping Norton AAG

Thanks Robin—Yes I am always more than happy to receive and include news about Societies and their plans and achievements—ED

Dear Editor

My name is Will Gater and I am a science writer and astronomer based in South West England. I am currently starting a new series of lectures in the coming months and was wondering if you would consider adding my details to your speakers list? If you would like more information about me please visit www.willgater.com.

Regards

Will

Thanks Will. Would all Societies please add this to their Speakers List as well? - Ed

Dear Sirs

I recently checked my details in the list of speakers in the FAS Handbook and found that you are publishing an old email address which I no longer use. My current email address for publication in connection with my astronomy talks is: mike.leggett@fsmail.net.

Many thanks and best regards

Mike Leggett FRAS FBIS

Hi All—Please amend your records—ED

Dear colleagues,

Allow me to introduce myself; I am the Chairman of the Norwich Astronomical Society. Over recent years, it has become apparent to me that it would be very useful to have some kind of discussion forum for astronomical society's to pool our knowledge/experience in administering running such a society. For example, Child Protection Policies, Insurance, Public Liability, Fund raising, laser pointer usage, etc, etc.

I am initially going to try to limit the group membership to 2 members (preferably officers) from each Society. To that end, if you and a colleague would like to join the group (only just formed) then please go to: <http://tech.groups.yahoo.com/group/ukastromgmt/> - click on 'Join this Group' and note down the Society you are part of in the notes form. Any problems with joining, please contact me at thompsonmarkp@btopenworld.com. Many thanks and kind regards

Mark Thompson FRAS Chairman (Norwich AS)

Direct Detection of Exoplanets

Samuel George

The field of exoplanets is one of the youngest in astronomy, the first exoplanet was only discovered in 1992. Currently some 250 planets have been found orbiting nearby stars.

All of these have been discovered via indirect measurements. A large number of these planets are quite unlike the planets in our own Solar system, though as detections progress an increasing number of similar systems are being found (and is down to detector selection effects). The main techniques for detecting extrasolar planets are indirect in nature, seeing the influence of the planet on the light from the host star rather than detecting the planetary properties directly. These methods, though great for detecting unknown planets, offer very limited information about the planet (such as a lower limit of the mass). To get more detailed information one needs to directly detect the planet. At optical wavelengths this is currently not feasible and will not be until the next generation of space based interferometers (such as Darwin or TPF) – you have to remember that the star is billions of times brighter than the planet at these wavelengths. However, at other wavelengths, such as low radio frequencies (where the planet may indeed be brighter than the star), there is the possibility of directly detecting the planetary magnetic field.

Low-frequency (well, low frequency for radio astronomers!) observations of Solar system planets have been made for decades with Burke & Franklin in 1955 being the first to discover the radio emission from Jupiter. Jupiter is a particularly bright and extremely variable source at decametric (3 – 30 Mhz) wavelengths. For the other planets, due to ionospheric cut off, it was not until the Voyager spacecraft era that their emission was detected. Essentially all planets in the solar system with a magnetic field produce radio emission. The process is believed to be that of the electron-cyclotron maser and the peak emission frequency is dependent on the magnetic field strength near the planet's surface. If we assume that exoplanets are similar to Jupiter and have a dynamo driven magnetic field with a similar interaction with the stellar wind then indeed we should see them at radio wavelengths. Thought, if Jupiter as placed at 10 parsecs away then we, with current detectors, would

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REVIEWS

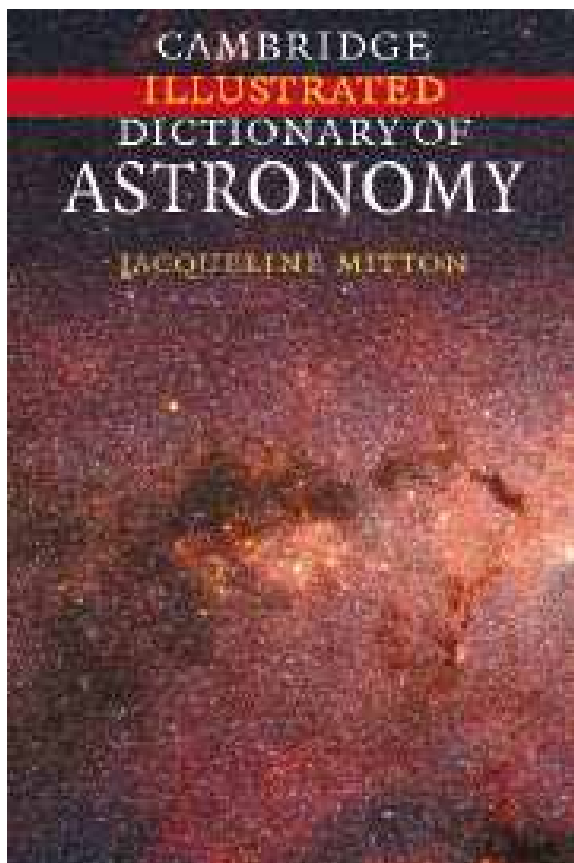
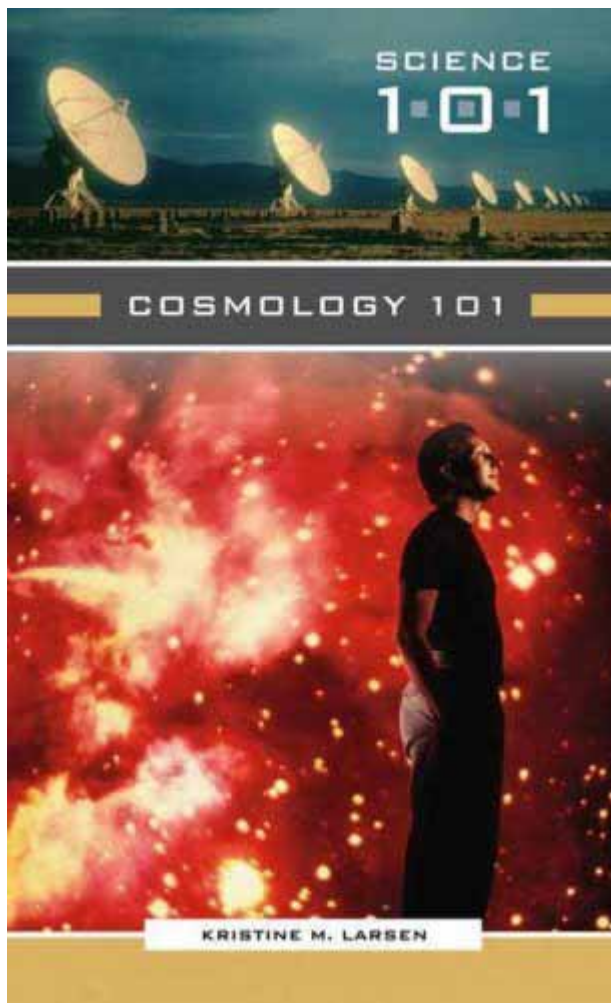
Cosmology 101 by Kristine M Larsen

Greenwood Press ISBN: 978-0313337314 £27.95
This isn't a book full of pretty pictures that you can leave lying around to impress others. This volume is largely text aided by a few black and white diagrams. The science 101 series of books provides an introductory level guide to the covered topic. As this would suggest, this book provided a very good introduction to subject of cosmology.

The style and language text in this book makes the subjects covered accessible, similar to Bill Bryson's 'A short history of nearly everything'. The six chapters are sub divided into topics that provide the reader with digestible chunks of information. With topics never filling much more than two or three pages its possible to pick up this book and read a topics from start to finish in a reasonable short time. From the formation and models of the universe to string theory the depth of each topic shouldn't leave the reader with a general interest and no previous reading on the topic out of their depth. That said some of the topics can be a little heavy even when written an accessible manner, I had to read some of the paragraphs on quantum physics twice in order to get head around the different types and flavours of sub atomic particles. Not perhaps the most ideal bedtime reading as the book feeds the questioning mind and trying to get to sleep whilst pondering the different forces interacting in the universe isn't easy. I can at least say that I have a basic understanding of the Heisenburg uncertainty principal, which could not have stated before I stared reading this book.

This book raised one quandary that about I can't quite resolve. The lack of pretty pictures enables the reader to concentrate on the text, not get distracted by pretty pictures whilst reading about a complex issues I found beneficial. But if I saw this book on the shelf of the book store or library, would the lack of these now obligatory pictures make me pass over it in favour of the other volumes containing more eye candy. Overall I'm glad I had the opportunity to read this book because I found it an interesting read and very informative.

John Durston



Cambridge Illustrated Dictionary of Astronomy

Jacqueline Mitton Cambridge University Press
£18.99 ISBN 978-0-521-82364-7

This is a difficult book to review as you don't start at the beginning and read to the end and I am not a qualified astronomer so cannot vouch for the accuracy of the entries. Jacqueline Mitton, however, is a qualified astronomer (Cambridge and Oxford universities) and author of over 20 astronomy books and contributor to many other astronomical books and magazines plus editor of British Astronomical Association journals, so I am sure that errors should be minimal.

The first appearance of this book is pleasing, it is an A5 sized hardback book of 397 pages with many excellent photographs accompanying the text entries. It is claimed that there are about 1300 entries with 300 colour illustrations. Each entry is concise but detailed and cross references are picked out in blue.

I found the book fascinating as where ever you opened it you could find interesting entries to read. The entries are not limited to astronomical terms but cover people and places such as telescopes, observatories and space missions. The book is up to date and for instance there is an entry for the James Webb Space Telescope due to be launched in 2013.

Within the entries there are 20 star maps of constellations, claimed to be new and illustrated by Wil Tirion, whose charts I have found in several other astronomy books. These were clearer in that the stars were white and not yellow as in his other books.

This is a reference book that I feel should be on the bookshelves of anyone interested in or studying astronomy.

Brian Timbrell

Deep-Sky Companions: Hidden Treasures

Stephen James O'Meara Cambridge University Press

£25

ISBN-13: 978-0521837040

Hidden Treasures is the third volume in Stephen J. O'Meara's Deep-Sky Companions trilogy, following on from his previous, excellently presented volumes on the Messier and the Caldwell Objects. It is also the weightiest at 584 pages, with a total of 109 objects described, none of which have appeared in the previous two books.

The collection, of galaxies, open clusters, planetary nebulae and more, have been carefully selected over a long period from many sources of reference, and all of them the author assures us, were selected for their visibility through a small telescope under dark skies.

These Deep-Sky Companion books are, from their size and format, tools of research, study and enjoyment rather than field companions, and this volume follows a similar format to its immediate predecessor, with some treasure hunting embellishments, as the book makes various references to a quest and actually includes a Treasure Chest at the very end, in which to record your "finds".

Each of the 109 objects is beautifully described in a manner that should grasp the reader's attention, including much detail of the objects' history and significance to astronomy, and enhanced by way of B&W photographs which have in the main been drawn from the photographic archives of many of the larger telescopes contained in the Digitised Sky Survey, and excellent composite sketches executed by Steven O'Meara while viewing the object at various magnifications through his own 4" refractor. There is also a Star Map of the region (embellished with a Compass Rose) in which the heavenly object resides, and where HTX marks the spot, no doubt to enforce the author's statement that these maps indeed lead to a hidden treasure.

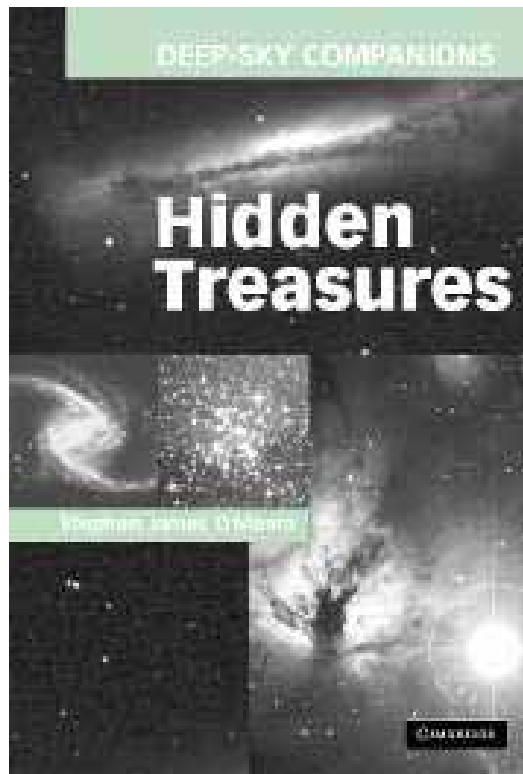
The very names of some of the objects have a buccaneer quality, with Cleopatra's Eye, Mermaids Purse Nebula and Blade & Pearl Galaxy to name but a few. Some of the list are well known objects already while others are quite obscure.

Steven O'Meara is blessed with living in an area that enjoys probably some of the best viewing sites in the world, a fact that he admits to when describing the execution of his drawings with the aid of his 4" scope 4200 ft up Mt Kilaweo, but he also gently slips in a

reminder that he has not always lived in Hawaii, but that he too has suffered from the problem of light pollution, and that we less comfortably domiciled should take both heart and our larger scopes, and seek out these treasures for ourselves.

This book is a fitting companion to its predecessors and has certainly stimulated my desire to search out the treasures listed within, and to possibly seek out some of my own, and I suggest that it will do so for all of its readers, and thoroughly recommend it to all with an interest in astronomy.

Andy Read

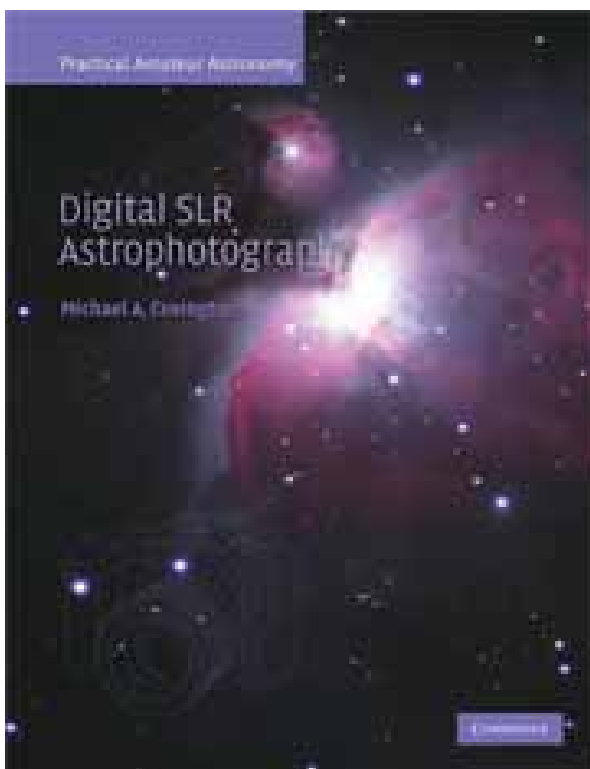


Digital SLR Astrophotography

By Michael A Covington Cambridge University Press

£21.99

ISBN-13: 9780521700818



Having used Michael Covington's earlier book, *Astrophotography for the Amateur*, I was interested to find out whether *Digital SLR* was up to the same standard. I am pleased to report that it is.

Most books on astrophotography tend to major on the using the dedicated CCD astro-cameras. However there are an increasing number of people using the DSLR for deep sky work, for several reasons. Firstly, Canon, in particular have for some time now been producing a range cameras that are proving very useful for astrophotography. Secondly, the cost of the 300D / 400D series are relatively inexpensive; and finally they can also be used for terrestrial photography.

Part 1 of the book outlines the development of the DSLR and explains about the technical issues related to digital image production. It also covers the operation of the camera in some detail, including such things as white balance, determining exposure and menu settings. There also four simple projects to get you started, these include afocal, fixed tripod and piggybacking.

Part 2 covers all those detailed aspects related to using the camera with a telescope set-up; from coupling the camera to the telescope to focal reducers and focussing to guiding. Sensor performance and the use of filters is also covered in this section.

Part 3 concentrates on what you do with the image after it has been taken; the bit that people have the most trouble with – digital image processing. Various types of software are covered as well as techniques for processing, some general for all types of photography and some for those aspects specific to astro-work.

Whilst I have been using a Canon 300D for some time, I found this book to be very useful solve some of the difficulties I was having, and can thoroughly recommend this book. It is a valuable addition to the astro-imagers bookshelf.

Frank Johns

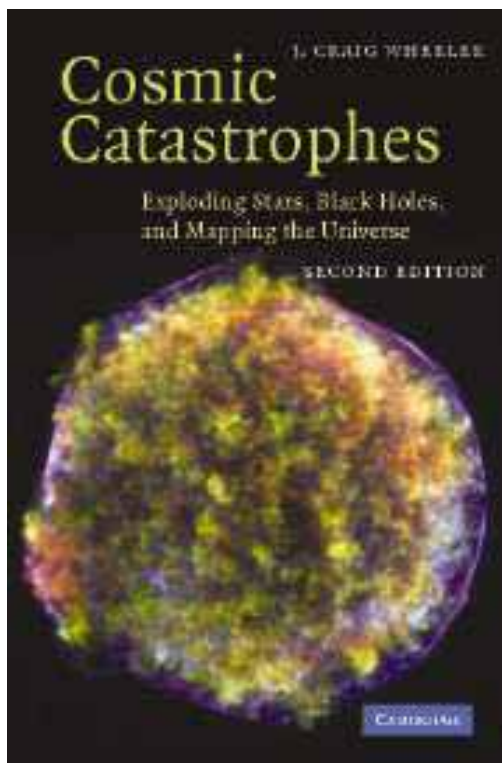
COSMIC CATASTROPHES

(Exploding Stars, Black Holes and Mapping the Universe)

J. Craig Wheeler Cambridge University Press. 2007 £25
ISBN-13: 9780521857147

J. Craig Wheeler is Distinguished Teaching Professor in Astronomy at The University of Texas at Austin and he is currently President of The American Astronomical Society. His research interests are in the processes of stellar core collapse and its consequences. This second edition of his book is a timely update and deals with the themes of stellar evolution and demise within binary systems, supernovae and their progeny, neutron stars and black holes and pursues in some detail the current place of these objects in astrophysical research. Wheeler addresses the conflicting theories of Einstein's General Relativity and Quantum Mechanics and the prospects for their reconciliation in String Theory. He also reviews the role of supernovae in mapping the Universe and recounts the discovery of an accelerating expansion. Other reviews have already heaped considerable praise on the first edition of this book and have recommended it not just as an exciting read for both the interested amateur and unreservedly to the wider physics community but also as a possible text for survey level astronomy classes. As one reviewer aptly commented, Wheeler highlights what is understood but he also brings the reader 'to the brink of the unknown'.

This is a splendid book, written in a direct and exciting style and addressing head-on the difficulties which recent research has placed on time-honoured views and on evolving theories of Cosmology and Stellar Astrophysics. There is little or no mathematical content in the book but it utilises the language of physics in an uncompromising but nevertheless clear and illuminating manner. The sequence in which the topics are presented is guided by historical record but also by subject relevance and there is frequent cross referencing to redirect the reader to important issues and material covered elsewhere in the book. As one might expect in this new edition, an entire chapter is devoted to the discovery, observations and analysis of Supernova 1987A. Scattered throughout the book there are also a number of interesting anecdotal inserts relating to the author's personal involvement in this field of study. Missing from the book is any



attempt to provide a list of references although there is frequent acknowledgement of the input of all who have contributed to current thinking within the wide-ranging subject matter.

This is cutting-edge stuff and Wheeler is quick to address not only the successes of recent decades but also the difficulties to which those successes lead within the tapestry of the physics of the last century. In this context the coverage is comprehensive, notably in its treatment of supernovae and core collapse processes in general but also, as just one example, of Gamma Ray Bursts as special case supernova events. There is a revelation of ideas in connection to the mass transfer processes in binary systems which this reader had not previously fully appreciated in the full context of stellar evolution and the resulting death of component stars. The author deals in some detail with the nuclear processes which occur as core fuel components approach the iron limit and he looks at the spectroscopic observations of supernovae which have supported the emergent current view. New ideas too concerning asphericity in supernova events and variety in the formation and properties of neutron stars – the book is packed with stunning new concepts and ideas, all presented in a manner designed to inform and excite the reader. There is also a refreshing honesty to the presentation which might not be evident in magazine level treatment of this subject matter. The author is quick to acknowledge those 'known unknowns' which lurk at the edge

of, and even within, current thinking. The use of supernovae as standard candles in mapping The Universe is also described in detail and the author reviews the current view that we live in a flat Universe composed of gravitating Dark Matter (1/3) but driven for the past five billion years by antigravitating Dark Energy (2/3). Baryonic matter would appear to be a mere sprinkling which provides the observational basis for exploring these dominant dark components.

To conclude his journey through this rapidly developing world of astrophysics Wheeler examines the seemingly magical possibilities inside the event horizon, the world of worm hole time machines and quantum foam. Then to quantum gravity, the multi-dimensional world of strings and the intersecting branes of hyperspace - on the edge perhaps of a 'Theory of Everything', Wheeler nevertheless reveals as a final thought his view that we are not about to see the end of Physics.

Brian Parsons

KIRKLEY OBSERVATORY; THE IMPROVEMENTS CONTINUE

Recent months have seen some considerable improvement work made to the telescope at the observatory. Len Brundle got to grips with the problem with the step motor that was originally fitted. At low magnification the movements of the motor, a series of small steps, were not visible but at high magnification the image could be seen to move as if it had a small pulse. Len Brundle has now sourced and fitted a new motor that gives a smooth motion to the 'scope and the image has improved dramatically. I received a 'phone call from Richard Chilvers after the first seeing with the new drive and he was ecstatic over the improvement. The rings of Saturn and the surface features on Jupiter were much improved. Our next step is to introduce a web cam or similar so that all can see the images when more than person is at the observatory and all cannot look through

the scope. Bob Saucier, a new member, has donated a TV with built in DVD player to the observatory and I have donated my old computer and Richard Chilvers and his son Martin have upgraded the processor to a Pentium III and added memory. Martin also upgraded the computer from Windows 95 to Windows 2000 Professional for us and installed a CD writer. This is at present working and has the BBC Starry Night Backyard programme installed and can not only show static star maps but can run through moving simulations of the sky. All we need to find now is a printer. The acquisition of a CCD camera could enable us to take astrophotography a step further than my hand held camera efforts. Slowly we are adding interest to the observatory and hope that more of you, especially those with some expertise will join in and help the observatory develop into a true asset and centre of interest for LYRA.

John Perring-LYRA

" Starfinder: the complete beginners guide to exploring the night sky"

Carole Stott Dorling Kindersley £20.
ISBN: 9781 405318198

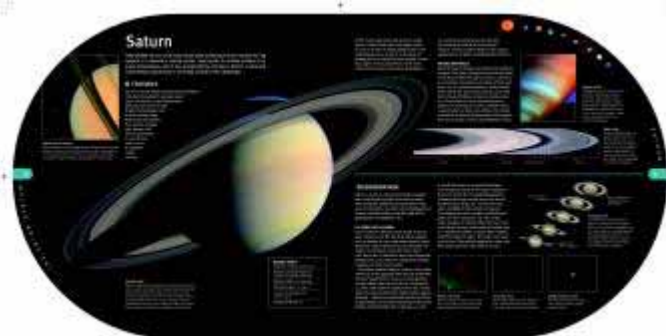
Albert Einstein said space is curved. Well the ever immaculate Dorling Kindersley has produced a literally curved 72 page space book

This is more than just a well-rounded book. It comes in a slip case with a cover flap that opens to reveal two sets of Constellation Cards (44 in all) of the star patterns we can see in the northern and southern hemispheres from the little known "Antlia: the Air Pump" in the south to the well known "Ursa Major" in the north. The cards have a constellation on each side giving the name derivation, its viewability (or not) from where you are in the world and the main items of interest to look out for in each. To refer to these cards outside in the dark whilst viewing the sky DK have also supplied a small red light LED. Finally, within the case cover is an integral Planisphere to know whats up at any time of the year in the northern hemisphere.

Each page of the book is a "light" black which sets off the trademark cutout photos and diagrams with which all DK productions are invariably excellent and clear. For instance, a large photo of the Moon sits perfectly within the curved page and the shadowed side is intensely black. Subtle presentation features like this give this book a quality above many others and helps the beginner to see how the viewable sky is an exciting and beautiful place. The concise text is aimed at an early teen to adult readership and is peppered with nuggets of information backed up with pristine photos or informative diagrams.

There are three main sections;

1. "Finding your Way" - how the sky changes each night, how to identify stars and planets by reading the charts, putting our position



in the Universe in context by looking at our place in our galaxy and as part of the Local Group and so on with tips on how to view using various equipment.

2. "The Solar System" - the Sun, the Moon, the planets including dwarf planets, comets, meteors and asteroids. Each item has a Data Panel, a Features and an Observation section. Also photos of what to expect when viewing with naked eye, binocular and small telescopes.

3. "Monthly Sky Guide" - Each month is shown as a double page including a Special Events panel (eclipses, moon phases and the planets), and what you can expect to see in the Northern and in the Southern Latitudes. There is a curvy strip chart showing the positions of the planets during the month.

For a beginner this package has all that is required to show what can be observed with very little and to help give a guided tour around the sky. It gives a guide on using the planisphere and relating it to the real sky. The Constellation Cards, like a set of "Top Trumps" cards, are handy concise guides with notes on that particular area of the sky without having to cart a book around with you. It says "this book will ensure your star-watching is both fascinating and rewarding". I would tend to agree.

Glynn Bernallick

Amateur astronomer & astrophotographer

REDSHIFT 6 - Now £29.99

Focus Multimedia—United Soft Media—Maris Technology
Further to the review by John Durston in Issue 84, Focus Multimedia have announced a significant price reduction to a very reasonable 1p under £30.

Whilst, as part of John's review, I did try the telescope control aspect of this software, I have now had a chance to explore it in greater depth. Even without the recent price reduction this was an impressive package, at just under £30 it is, in my opinion, unbeatable for the range of very nice visual features, in addition to the all important practical aspects required by the serious amateur astronomer. It also has a manual with over 250 pages—a more unusual (and welcome) feature so lacking with modern software.

When it comes to the 'spectacular', I particularly liked the multi-window mode where it is possible to view an event from different part of space. As a means of enthusing young people, the ability to zoom amongst the planets is excellent.

However, when you get down to the serious side of amateur astronomy, you want detailed facts, accurate representation of the sky and, where your set-up allows, fine control of your telescope/mount.

Redshift 6 does all this and more. It is now a real contender to the more established software.

Frank Johns



Planetary Motions -

A Historical Perspective

Norriss S Hetherington Greenwood Press £37.95
ISBN-13: 978-0-313-33241-8

With our current knowledge from all the past research, space travel, giant telescopes, etc., it can be a bit difficult to understand why some of the theories about the planets and their place in the system ever held sway.

However it is important to try to put oneself back in time and without any of the knowledge about the solar system we now have. Imagine watching these lights travel across the sky at a different speed from the other stars—and at different speeds from each other—and sometimes they seemed to go backwards! Furthermore, without a telescope, the only clue to the fact they are spherical bodies was the moon—and this actually only looks like a disc, which changes shape regularly.

It is hardly surprising to me that there were a number of weird and wild ideas to try to explain the reality.

Norriss Hetherington, after what must have been a prodigious amount of research, take the reader from the earliest records, clay tablets from Mesopotamia, created in Babylonian times, through Plato and Ptolemy, to Copernicus and thence to the present day.

It is chastening to read that about half a million clay tablets from Babylonia are 'scattered among the museums of the world' and many of these have yet to be deciphered. How much more knowledge of the heavens did that people really understand?

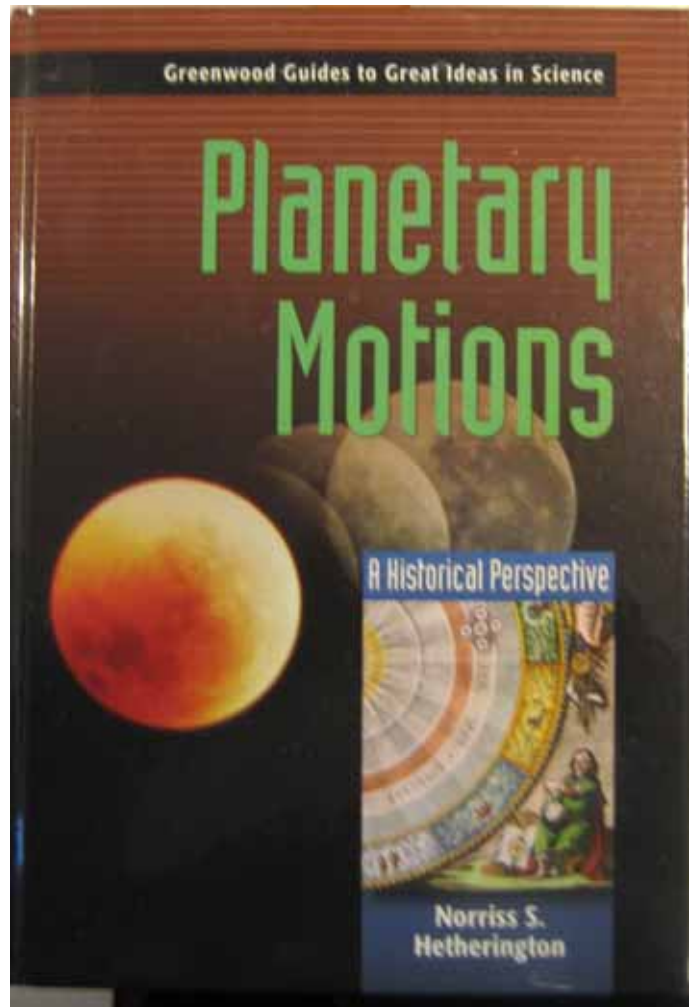
This book covers much of the physics related to planetary motion and gravity and goes into considerable detail regarding 'Eudoxus and Concentric Spheres' and 'Ptolemy's Exposition of Mathematical Astronomy'. There is also a very interesting discussion on Ptolemy in the Chapter entitled 'The Greatest Astronomer of Antiquity—or the Greatest Fraud in the History of Science'.

After considering Islamic Planetary Astronomy the action then moves on to Copernicus and Galileo and the conflict between observational evidence and the perceived wisdom (prejudice?) of the Church at that time.

Isaac Newton and gravity neatly ties up many of the loose ends. I liked the timeline at the end of the book, this really put things into some perspective for me.

This is a very interesting and enlightening book - one which should be read by all.

Frank Johns



Arthur C Clarke dies at 90

On Wednesday, 22nd March the science fiction writer Arthur C Clarke died at his home in Sri Lanka.

Born in Minehead, the son of a Somerset farmer, Arthur C Clarke was, by the general public, best known for his books on science fiction and, of course, for being the inspiration behind the film 2001: A Space Odyssey. However many astronomers remember him as a science thinker first and a story teller second. He had been a member of the BAA for many years and was a council member of that organisation in the 1980's.

Of his fictional works, the one that inspired me most was the series starting with 'Rendezvous with Rama' - whilst it was a gripping yarn, the fact he created a 'punch-line' where Earth and its people were of little consequence, spoke volumes for the far-sightedness and perspicacity of the man.

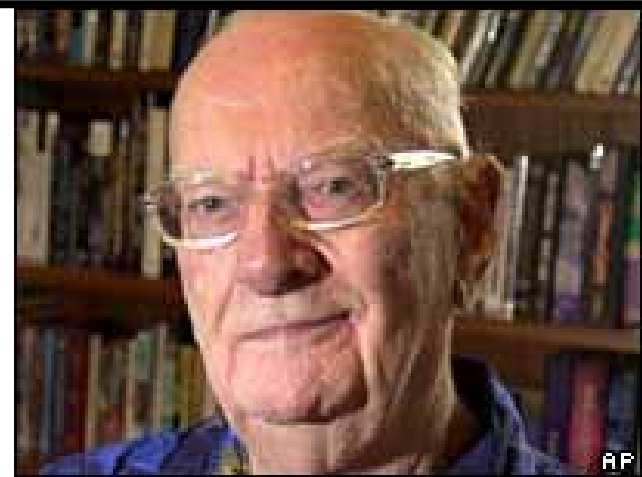
Here, I have to admit that having seen the film 2001 several times, I still have yet to figure out the ending!!

In 1945, a UK periodical magazine "Wireless World" published his landmark technical paper "Extra-terrestrial Relays" in which he first set out the principles of satellite communication with satellites in geostationary orbits - a speculation only realized 25 years later. During the evolution of his discovery, he worked with scientists and engineers in the USA in the development of spacecraft and launch systems, and addressed the United Nations during their deliberations on the Peaceful Uses of Outer Space.

For those enthusiast of his writing, there is one treat still to come. His latest, and final, novel 'The Last Theorem' co-written with Frederik Pohl, is due to be published later in 2008.

When some people depart this life, the remark is sometime made 'we shall not see his like again' - in the case of Arthur C Clarke, I believe this to be particularly fitting.

Frank Johns



Arthur C Clarke 16 December 1917—19 March 2008

As you may know, my main interest in this subject is in the use of satellite relays, which I think may revolutionise the pattern of world communications. To the best of my knowledge, I was the first to suggest this possibility (see "Extraterrestrial Relays", Wireless World, October 45). By another odd coincidence I've just sent my agent an article on these lines, entitled "The Billion Dollar Moon", giving my latest view on this subject. My general conclusions are that perhaps in 30 years the orbital relay system may take over all the functions of existing surface networks and provide others quite impossible today. For example, the three stations in the 24-hour orbit could provide not only an interference and censorship-free global TV service for the same power as a single modern transmitter, but could also make possible a position-finding grid whereby anyone on earth could locate himself by means of a couple of dials on an instrument about the size of a watch. (A development of Decca and transistorisation.) It might even make possible world-wide person-to-person radio with automatic dialling. Thus no-one on the planet need ever get lost or become out of touch with the community, unless he wanted to be. I'm still thinking about the social consequences of this!

But as for details of frequencies and powers, I'll have to leave that to the experts to work out; I'll get on with my sciencefiction and wait to say "I told you so!"

This extract from a letter written by Arthur C Clarke in May 1956 clearly illustrates the accuracy of his scientific prediction.

REEPHAM'S TWENTY FOOT DOME:

The story so far

When I joined the NAS (Norwich AS) in 1970, the first words the Secretary Cyril Blunt said to me when he learned that I was an engineer interested in telescope making; Good! You could help us build our Observatory". And so, in due course, I did. We decided to make every effort to make a big telescope and said we would make a 30 inch, even though we thought that size to be unlikely, and that we might have to settle for something smaller.

Our oldest member, Bill Bennett knew Dr David Dewhirst at Cambridge University and four of us went to see him one weekend, to seek his advice and have a close-up view of their 36 inch telescope. After a chat and a good look in the observatory, Dr Dewhirst took us into their optical workshop where Dr Linfoot had made mirrors before recently retiring. There were lots of goodies including the original Hindle mirror making machine and lots of tools to go with it.

The machine has been much imitated among the mirror making fraternity since it was made in the 1930's but; leaning against the wall was a disk of glass, partly wrapped in sacking. I ran my tape measure over it and exclaimed "30 inches". Dr Dewhirst later went to see the boss, Dr Redmond and when he came back, he told us the glass had been around for a very long time unused, and if we wished, we could take it away and see if we could use it. The only provision was that if ever we had no further use for it that we should pass it on to another society at no cost. Eventually, we were also given the Hindle machine and, fully equipped set about making the mirror and the telescope.

But first things first: we had to make a suitable Observatory. The four of us who had visited Cambridge were rather concerned as to the rather unsafe design of the Observatory. It was a standard design with the telescope base on the ground floor and the observing floor above at the eyepiece height of the telescope. This floor had a large hole in the middle through which the telescope stood but no safety barrier. Our dome would necessarily have to incorporate adequate safety access for all the anticipated users and the only way was to have a barrier. As the fixed barrier would have impeded the telescopes motion, we decided that the observing floor would have to move around with the telescope: our basic design was born.

As much to save the brickwork on which the rail was fitted, the wheels were positioned well in from the outer edge of the dome, so allowing the spherical shape to continue downwards to give the shape that can be seen in the photo image. The dome had to have an operable slit and an access door and these were both provided between two steel hoops that go over the dome from one side to the other. The door is partially below floor level with steps going through, all rotating with the structure. Because the top of the door is so low, relative to the floor, and with the spherical shape of the dome, the slit cover is split into two, the upper one going over to almost touch the

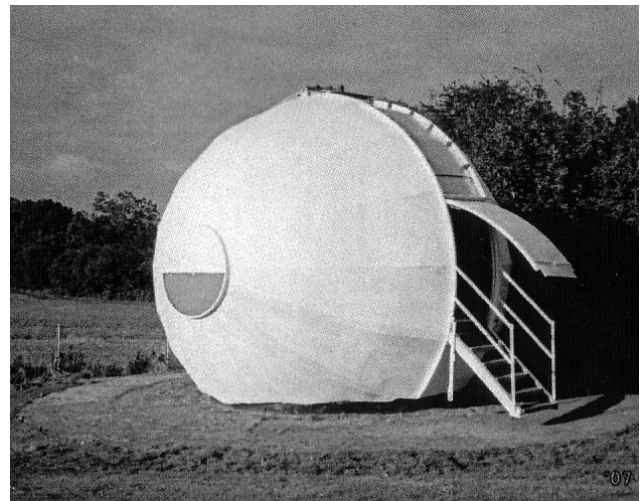
door and the lower one sliding downwards almost to ground level. An unusual feature of its appearance is that the dome segments, instead of the usual arrangement where they meet at the top but here, they come to the sides. Because the maximum length of galvanised steel sheet at the time was 12 feet (3.6 metres), a 5 feet diameter hole was left at each side and filled by flat sheets.

The dome was constructed at Colney Lane during the 1970's, transferred to Seething in 1994 because of the new hospital being built nearby and then again in 2000 moved to Reepham after the NAS decided that they did not want it anymore. Funds were raised, an agreement drawn up between Reepham High School and a new group called Norfolk Astronomers established.. In August 2006, the steelwork erection began yet again with the help of a 10 ton crane.

The dome is now complete and work will soon commence on refurbishing the 30 inch telescope. When complete, it will be available for use, particularly by the High School Astronomy group, the building group and by visiting groups.

Brian Mitchell

Norfolk Astronomers & Breckland AS



Brian has been a day time astronomer for many years built solar observatories and provides regular observations for the BAA's solar section. Brian while developing this new observatory is a regular member and attendee at Breckland's AS, presenting copy on solar observations for its bimonthly newsletter. One can see from the foregoing that this Observatory has been one of Brian's life works considering that he has been tied to it for nearly 40 years. It's become a movable home and its without a doubt that without his support that this Observatory may well have been without a resting place. Let's hope that its final installation (and resurrection) will have reached its final destination.

Leonard Brundle—LYRA

BEGINNINGS - Leonard Brundle (chair LYRA)

My first telescope was a home-made affair. It was rather unusual. The mount was made from two very large fish tanks – galvanised iron, for those requiring a complete specification. They were empty, standing on end, one on top of the other. On the topmost surface was an old wooden stool, upside down. The cardboard "optics tube" was wedged firmly in the V-gaps between the stool's legs. The tube was tilted upwards by placing a piece of rotting fence-post under the far end of the stool.

By now the discerning reader will have guessed that this was an alt-azimuth mount - well sort of. Adjustments in altitude were made by shifting the fence-post. About 30 deg. was the biggest tilt possible. If the stars were inconsiderate enough to move in azimuth the top tank had to be shoved round. This was tough work because it was very heavy. Fortunately, family and neighbours seemed to sleep well through the harsh grinding.

The object glass was supplied by an obliging optician. It cost 45 shillings, paid from a wage of half-a-crown each Saturday at my granddad's tailor shop. This lens was 3½ inches in diameter and had

a focal length of 1 metre. That is, it had a power of 1 dioptre, according to the optician. It was only a single piece of glass, i.e. it was not corrected for any of the terrible aberrations one reads about. I forget where the eye lens came from. Probably just as well. The tube containing this most basic optical system was rolled from a sheet of white cardboard purchased from Floods (now Jarrols) in Beach Road, Lowestoft. It cost eleven-pence – old pennies that is.

Now although it could be argued that this telescope was lacking somewhat in technical excellence, it served me well as a starter. One whole night was spent enjoying the colours of a total eclipse of the Moon (much harsh grinding that night). Also, by day I watched the movements of many groups of sunspots and estimated that, in the year 1957 at least, the Sun took about 26 days to rotate. My schoolmates and I observed the two bright comets which appeared that year, Arend-Roland and Mrkos. I was inspired to find the first of these by Patrick Moore in his very first Sky at Night TV programme. I wish I had taken a photograph of that fish-tank telescope. Today, all that remains is the 3½-inch lens. Whenever I look at it fond memories are rekindled.

The latest fade of a Sooty Star

Many years ago the variable star designated R in the constellation of Corona Borealis, the Northern Crown, was the first example to be discovered of a class of highly-evolved stars that contain an abundance of the element carbon in their atmospheres. Periodically this carbon coalesces to form dense clouds that block the light from the parent star. For several weeks or months the star will fade until the cloud or clouds either dissipate or move away from the line of sight. Such stars have been found to fade and then brighten in an unpredictable, erratic manner, much to the delight of vigilant amateur astronomers.

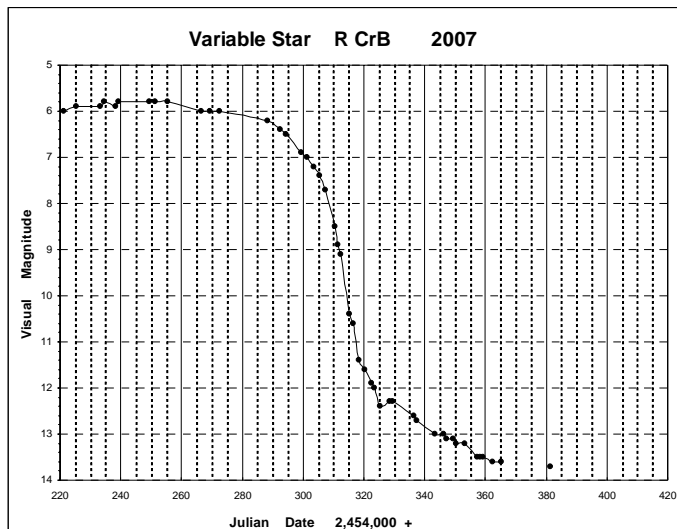
For most of the time R CrB itself shines at sixth-magnitude. It can then easily be seen with binoculars twinkling within the semi-circle of stars that delineate the constellation. Sometimes this star fades just a little bit, remaining within reach of binoculars or small telescopes. Occasionally however it can really plummet and disappear from view in even the largest amateur instruments.

Such a dramatic fade occurred during July to September 2007. The accompanying Fig. shows all my estimates of its apparent brightness. The estimates were made using nearby comparison stars that had been plotted on a set of charts provided by the Variable Star Section of the British Astronomical Association. From October onwards R CrB has remained fainter than magnitude 13.5. This is the limit of my 8-inch reflector. Note that a fade from magnitude 6.0 to 13.5 or fainter represents a decrease in brilliance of a thousand times or more. I am still eagerly awaiting its recovery to its former glory. This may happen at any time. Unfortunately, Corona Borealis is now too low in the west to be seen after sunset. This leaves no alternative but to bounce out of bed to catch the predawn rise of this constellation.

Notice the time scale on the horizontal axis of the Fig. Astronomers frequently use a system of measuring the passage of time by dispensing with calendars and counting only in days, hours, minutes, etc. This has the advantage of allowing a quick and simple method of plotting and studying events over long periods without the confusion of months of unequal lengths, leap years, etc. The scale often used is called Julian Days. For example, noon GMT on 8 August 2007 was the start of Julian Day 2,454,320. The first day on this scale began at noon GMT on 1 January 4713 BC. Why start with such an odd date and so long ago?

That, as they say, is another story.

Len Brundle (LYRA Chairman)



WELL. I FINALLY DID IT! - A GO-TO SCOPE...!!!.

I made the decision after a lot of thought given and a lot of advice asked. The best advice came from my wife, Barbara, who, roughly translated, said why on Earth don't you buy a decent telescope and stop looking to save money by cutting corners and then saying for evermore that you wished your new telescope did this or that. Barbara knows me too well - lucky me. The Celestron Nexstar 6 SE ticks all my boxes.

Coming into astronomy at retirement age means that I have a short time to learn a lifetime's knowledge about the heavens. A GoTo seemed a useful idea, perhaps a lazy man's way out, though certainly a means of gaining easy access to heavenly bodies. It also meant that, at my age, I had to get to grips with the technology, the instruction manual, keypads, menus and current computer speak. It turned out to be a piece of cake, simplicity itself. The telescope comes in two parts, the scope itself already clamped onto a dovetail fitting on the motorized arm, and the tripod. The 'scope is secured to the tripod with three screws from underneath, turned by large, easy to use, shaped knobs - fitting time 1 minute. The control is through a keypad attached to the Nexstar by a curly cord. It has an alphabet and number keypad like a mobile phone and four large keys for tabbing up, down, right and left. These latter four move the 'scope which you can also do when not in GoTo mode. It has a red dot finder, the first one I have ever used and I found it easy to fit, calibrate and use.

There is a user friendly, idiot proof, (*okay, okay!!*) instruction sheet with 'photos to tell you how to set up the scope for observations. The scope needs to be aligned with three bright stars. Not named stars but any three bright stars. The idiot doesn't even have to know their names. So far so good.

The weather has been so bad lately that I have had just one chance to do this and the clear slot lasted about one hour. After entering Lat. & Long, date and time on the keypad I turned the Nexstar to a bright star, pressed Enter and Align and it asked for star number 2 and then 3. Instead of the handset confirming the alignment it said I had failed.

Now, this is the only thing that has to be done extra carefully. When the red dot finder has found the bright star make sure, by correcting the 'scope position via the keypad, that the star is really in the centre of the field of view. Slightly off centre will not do. The next three alignments I undertook with a little more care and spent that

extra 30 seconds per star and presto, alignment successful. After that, a total of about 5 minutes from assembly, it was truly fantastic. The keypad has menus for Planets, Stars, Sun, Moon, Messier etc; and these menus also have subsections. Stars are listed under various categories so I selected doubles, tabbed down to Albireo and pressed enter. The servo motors whirled and in seconds the bright blue of Albireo was in the centre of the field of view. Next I pressed Planets and selected Jupiter. Once again the 'scope slewed round to the target and found the planet with three of its moons visible. The Nexstar has several slew speeds to cater for the movement of stars, planets, Sun and Moon. When slewing the Nexstar manually the speed of the scope slew speed can be adjusted from 1 to 9. Number 9 is for slewing the 'scope through large movements but for fine adjusting select a low number and the movement is very fine indeed. It even has a TOUR button which can locate the best objects to view for the current month. A lead is supplied to enable the telescope to be controlled remotely from a computer. Objects can also be found by entering the RA and Dec. The power is from 8 AA batteries slotted into the base, but Celestron also market a rechargeable Powertank, the type of thing that you can use to start a car. It also has a large built in flashlight and a red night light. It comes with a cigarette lighter adaptor to connect to the Nexstar and also of course to your car cigarette lighter.

Am I pleased? After only a short trial run I am delighted. Expensive? Not when you consider what you get. Value for money? Definitely - if only because of all that wonderful technology that will, I hope, open up the sky to someone who, when not in the company of knowledgeable astronomers, struggles to find more than the usual easy objects. Where did I buy it? From the very pleasant and informative Martin at Viking Optical in Norwich.

Portability. Not too big to go in the car boot if you want to seek a dark spot. It comes beautifully packed in a moulded polystyrene lined box. Only 14 kg (31 lb). fully assembled. Easy for my old bones to carry.

I hope that by the time you read this the weather may be kinder and I will have had more experience to evaluate it further. I may not know much about what I am looking at but I am going to look at a lot more of it in future. So, if you do not know your elbow from your Andromeda.....Go on, spoil yourself. Also comes in 8" - (*will I regret not getting one of them???????*)

John Perring—LYRA

WORTHING AS Visit To Clanfield, Hampshire

Home of HAG Observatory - 23 Feb 2008

On a cold, damp, overcast and windy afternoon in late February eighteen members of WAS met at the observatory site of Hampshire Astronomical Group at Clanfield near to Petersfield. This is on the site of a reservoir, therefore giving excellent viewing conditions though neighbouring light pollution is starting to encroach. It had been hoped that the sky would be clear for solar observing and perhaps some evening viewing, but after a run of weeks with fine weather, and a few days after a Lunar Eclipse also clouded out, we were not to be fortunate.

We were escorted to the dome that housed the 24inch Reflector and the telescope was put through its paces, then onto a large dome which housed a 5 inch Cooke



Dome of Cooke Refractor Taken By Jan Young



Dome of 24 Inch Reflector Taken By Jan Young



Cooke Refractor Taken By Jan Young

Refractor originally built for the southern hemisphere as the setting circles were in reverse to those used for Northern skies. A few members, myself included, would have been delighted to have taken this lovely telescope home with them for their own use!

The dome that it was housed in, was donated from Herstmonceaux when they were making changes in the 1980s, but it is believed by our Solar Section Director that originally it was in a Worthing garden belonging to a former Solar Section Director of the BAA.

Tea and biscuits were served midway during the afternoon, very welcome by all. Then it was to see the latest arrival at the site, the observatory and telescope of the late Douglas Arnold, famed for his photographic work which was donated to HAG upon his death. After viewing one of the smaller domes, it was announced that there was no chance of clear skies so the visit came to an end and we made our way home. Thanks go to all the attendees from HAG, who gave up a Saturday afternoon and one which they probably would have preferred to spend indoors, to look after us so wonderfully and made us all so welcome and to Graham for organising the trip.

Jan Young

Andy Dowsett and family visit Chile

It was with great excitement that the family embarked on the holiday of a lifetime to visit S.A.S. member and daughter Rachel who is working in Chile for the European Southern Observatory (ESO) as a research fellow. The prospect of visiting South America, seeing the Southern sky and staying the night at one of the world's best telescopes was good reason to be excited. It would be quite literally a holiday of a lifetime, mainly because I could never imagine ever having enough money to go again!

Air France put a spanner in the works by losing Anna's and my clothing, which, in a country where the average height is about 5'6", was a problem for me. It also managed to snow in Santiago for the first time in countless years, which was a bit of a surprise.

After church we met with Blair, a friend of Rachel's, an astronomer also working for the E.S.O. who is studying the Large Magellanic large cloud. I was fascinated to learn that the satellite galaxy to our own Milky Way had actually passed through the Milky Way at least once and possibly more, and was well and truly being incorporated into the Milky Way, knowledge I was able to pass on later. I was itching to see the Southern sky but would have to wait a day or so until we started our expedition to north Chile and get away from the infamous Santiago smog.

We had travelled with our foster children Liam and Savannah, but we had a shock the next morning when our son William turned up at Rachel's flat.

He was supposed to be at home looking after the house and animals, but had arranged with

Rachel's husband Douglas to give us a surprise – it did! I'm sure I will start talking to Douglas again sometime in the future.

The Land Rover had seven seats but we had to fit a roof box to accommodate our luggage.

We had a lot of travelling to do because we were booked in at Paranal for the night on Wednesday, so we had two days to travel about 800 miles. The roads were very straight with very little traffic so we made good time and stayed the first night at a hostel in La Serena where it managed to rain for the first time that year. In the evening we met with friends of Rachel's, David and Camilla for a meal in a beach restaurant. David works for the Magellan Observatory at Las Campanas, near La Serena.

After the biggest, best and cheapest steak I have ever eaten, I was given a quick guided tour of the southern sky outside the restaurant by David. It was very disconcerting to look at the sky, as I have for the last 30 years, and not to be able to make any sense or recognise constellations. When I did recognise a star or constellation it was upside-down.

The next day Rachel told me that David had been the ship's astronomer on a recent re-construction of Captain Cook's epic journey on the Endeavour to Australia, not a bad guide and quite an experience.

It was exciting to see the desert, but the excitement does wear off a little after a few hours. We stayed in a lovely beach hut by the roaring Pacific on Tuesday night at Bahia Inglesa (the English Bay!) and even at sea level the sky was clearer than I have ever seen. I woke just before sunrise to take some photographs and was quite relieved to see Orion and other familiar constellations. Although having to look through your legs to orientate yourself was undignified!

Suddenly the sky made a little more sense. This part of the trip was a bit of a busman's holiday for Rachel, bless her, as she would be working back at the telescope in a few weeks.



*Aerial View of Paranal Observing Platform
Credit European Southern Observatory*

The Satnav told us to turn round, as the private road that leads to the telescope did not exist on any map.

The road wound up through the desert for about 40 miles, we arrived early evening, passed through security and went straight to the control centre and up to the telescopes to watch the domes opening in the sunset.

This time was a good opportunity for the day shift to chat with the night shift, and a fantastic photo opportunity (see team photo next page). I had my safety helmet on back-to-front because I was using a studio camera with a waist level finder, and not as a fashion statement! All four telescopes got into their starting positions. They all can be linked together but this isn't often done as it is very complicated, and only very bright objects can be studied, but in great detail (using interferometry, like radio telescopes). For normal operations the telescopes work independently, so they can produce world-class scientific results on four targets at the same time. We walked the 2½ miles down to the residencia to unpack and have a meal then returned at the start of operations.

There were three teams of visiting scientists working, one from Coventry studying cataclysmic variables, and given my command of





One Element of the Very Large Telescope

Spanish (ten words) it was nice to talk to them. Another Dutch/USA team were studying Uranus, which was nice because they don't often study planets at very large telescopes.

On this occasion, the rings of Uranus were edge on, and the beautiful image filled the monitor screen, not the pin head I had been looking at for 25 years with my own 'scope.

Telescope and instrument operator Jose showed us how to set up the active optics. Watching the image improve as the mirror shape was altered was fascinating, and the image improved further with the adaptive software switched on. The next step was to locate guide stars for the chosen targets; the alarms were all set to warn when the guide star drifts, and data collecting commenced. We stayed for a while just soaking up the atmosphere.

Prior to our arrival, they had experienced a 12-hour power cut which was bad news for the supercooled instruments which may have heated up too much and been damaged. The senior astronomer on duty was explaining to Rachel the problems and procedures to limit the damage. Fortunately all was OK after a few hours.

We returned to the residencia. William and I got out the cameras and the others turned in. I had started the day about 6.00am taking photographs of stars, and eighteen hours later I was still taking timed exposures – it had been quite a day.

The whole site is just like a James Bond set, cut out of the mountainside, with palm trees and a swimming pool inside the residencia.

The holiday continued. In the desert we saw construction

continuing for the Atacama Large Millimeter/submillimeter Array (ALMA) the enormous 56 dish submillimetre telescope (a cross between optical and radio) and trial sites for the Extremely Large Telescope (ELT), due to start construction in the next few years.

We swam with turtles the next day before travelling to San Pedro, where we relaxed for a few days. After siesta one day, we saw an astronomy tour advertised which Rachel, Doug and I went on. The thought of being able to run a tour of this type six nights a week without regard for the weather was a hard concept for a British based astronomer. The tour was designed for absolute beginners (see www.spaceobs.com) and the owner gave the tour at his deserted ranch, about 15 minutes drive from town. He had about ten telescopes, sized up to about 18", permanently mounted outside, only covered during sand storms. Rachel and

Doug were impressed at how much you can see with a small telescope, given a clear sky, and what a nice experience using your eyes directly can be. Alain gave a nice talk – his dislike of astrology being the main theme!

It was good to see the summer triangle (up-side down) and to try to understand that our viewing platform (the Earth) is round, so causing the orientation problems. Now I had seen all of the sky – a nice feeling...

I asked if the southern sky had an equivalent of M31, a good naked eye galaxy. He explained you could see M31 low down at certain times of the year, but they also had the

magellanic clouds. I said, knowledgeably, "You know they really are becoming part of the Milky Way, having passed through once or twice".

This was news to him and Rachel confirmed the fact. He was very interested, then whispered to us, "Don't tell anyone, I will change my talk another day".

We continued over the Andes at 15000 feet which was breathless and back through Argentina, stopping mostly at vineyards, then back over the Andes to Chile and home. Some trip. I am very lucky.

Rachel will probably leave Chile this November, choosing to complete the last year of her fellowship elsewhere – hopefully nearer home, which will be nice.

I did ask if she could try Hawaii, so I could visit and practice my other passion, sub aqua, dream on!

Andy Dowsett

Taken from Hermes—the Newsletter of the Shropshire AS



Members of the Shropshire AS at their AGM

How Faint was that Eclipsed Moon ?

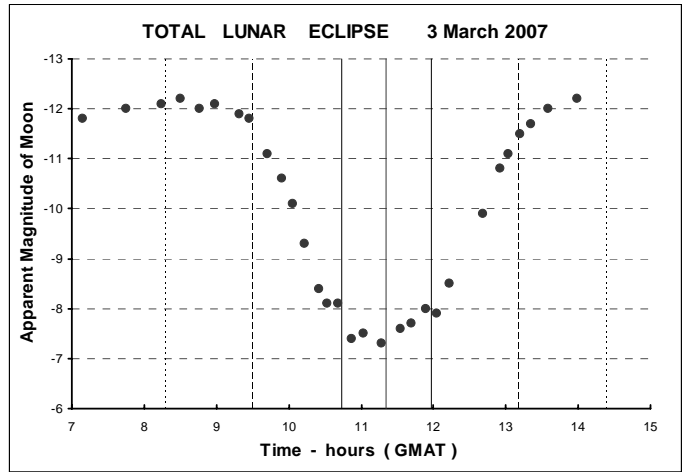
For many years I have watched the rising and falling in brightness of numerous variable stars. I have estimated all these variations by comparing the brilliance with those of their steady companions. Therefore, early last year, as 3 March approached, I found myself wondering how I could gauge the fading of the Moon when it entered the shadow of our Earth. The trouble was, what could I compare it with? There would be no companion Moons that did not fade. I needed some other way to measure its decline.

By sheer good fortune, help was at hand. In February I had purchased a Sky Quality Meter, manufactured by Unihebron in Canada and supplied by Altair Astro. This is a small hand-held calibrated light monitor manufactured specifically to measure the light pollution of the night sky. Just like our eyes, it is sensitive only to the visible part of the electromagnetic spectrum, and was very simple to use. All one had to do was to take it to any outside site, point it directly upwards, press a little button and its LED display would give a measurement of the glow of the night sky. It would give a reading of about +17 or +18 for a badly-polluted sky, up to +22 or +23 for a stunning starlight night. The best reading that I have so far for the night skies over Lowestoft is +19.7.

The big question was - could I point this device at the bright Moon without damaging it. If so, I could get readings that would allow me to plot a light curve of the eclipse. The manufacturer's description was reassuring. The meter had several built-in protection mechanisms. So, throwing caution to the bitterly-cold wind, I tested it on a very gibbous Moon just a few nights before 3 March. Hurray! No damage. What a robust little fellow.

So, all appeared to be well. There was just one tiny problem. The manufacturer's blurb stated that the meter displayed the light pollution in stellar magnitude per square arc second over a cone of sky of half-angle 40 deg. That set the little grey cells back a bit. How was I to convert such a reading into a genuine magnitude for the total light coming from the Moon? After a troubled night of tossing and turning, I worked out how I could do the calculation.

So, on the evening of 3 March, armed with the meter, a watch, and a dictation machine hanging round my neck, I sallied forth to Pakefield Cliffs to join the other LYRA stalwarts. Every 10 minutes or so, I moved a discreet distance from the company, aimed the meter at



the Moon, took a reading, noted the time and dictated the result. Later, home again in the cosy warm, and after a good night's sleep, all the results were plotted on a graph.

The outcome of this heroic endeavour is illustrated in the accompanying Fig. The red dots are the measurements. They show a healthy little bit of scatter, typical of random errors, which distinguish real test results from a smooth theoretical curve. The axis along the bottom, the x-axis, is the time expressed as Greenwich Mean Astronomical Time. This equals GMT less 12 hours. Such a time scale is often used by astronomers who live near the Greenwich meridian to avoid any confusion of a change of date during the hours of darkness. The faint black dotted lines indicate the moments when the Moon first entered the partial shadow, the penumbra, and when it finally exited. The bold black dashed lines are the corresponding moments for the total shadow, the umbra. The black solid lines show the beginning and ending of totality, and the red solid line is the moment of mid-eclipse. The axis at the left-hand-side, the y-axis, shows the apparent magnitude for the total amount of light from the Moon.

The figure usually quoted for the apparent magnitude of a full Moon high in a cloudless sky is -12.8. Notice in the Fig. that from about 7.09 to 8.18 hrs the brightness was increasing and may have reached a value close to this had there been no eclipse. Hence, my calculation mentioned above clearly was giving realistic results.

So what is the answer to the question in the title of this article? How faint was that eclipsed Moon? The drop in brightness appears from the diagram to be about 5 magnitudes. In other words, the eclipsed Moon was about one-hundred times fainter than the normal full Moon would have been. However, caution is advised here. The fade may indeed have been more than this. It was noticed during totality that when the meter was pointed at the Moon the readings were essentially the same as when it was pointed elsewhere in the sky. That is, the brightness of the eclipsed Moon had fallen to or even below the background sky-glow level.

Now, it is well known that some totally-eclipsed Moons are much brighter than others. It all depends on how much volcanic ash, meteoric dust and water vapour is world-wide in the Earth's atmosphere. This governs how much of the light from the Sun that is bent around the Earth can still reach the lunar surface. So, please roll on the next total eclipse so that my little meter may compare the two events!

Footnote: -Members of the Orwell Astronomical Society, based in Ipswich, graded the brightness of this 3 March eclipse as L2 or L1 on the Danjon scale. On this 5-point scale, L4 is the brightest copper-red or orange eclipse, down to L0 which is the darkest when the Moon almost disappears into total blackness.

L0 eclipses are quite rare.

Leonard Brundle - LYRA Chairman



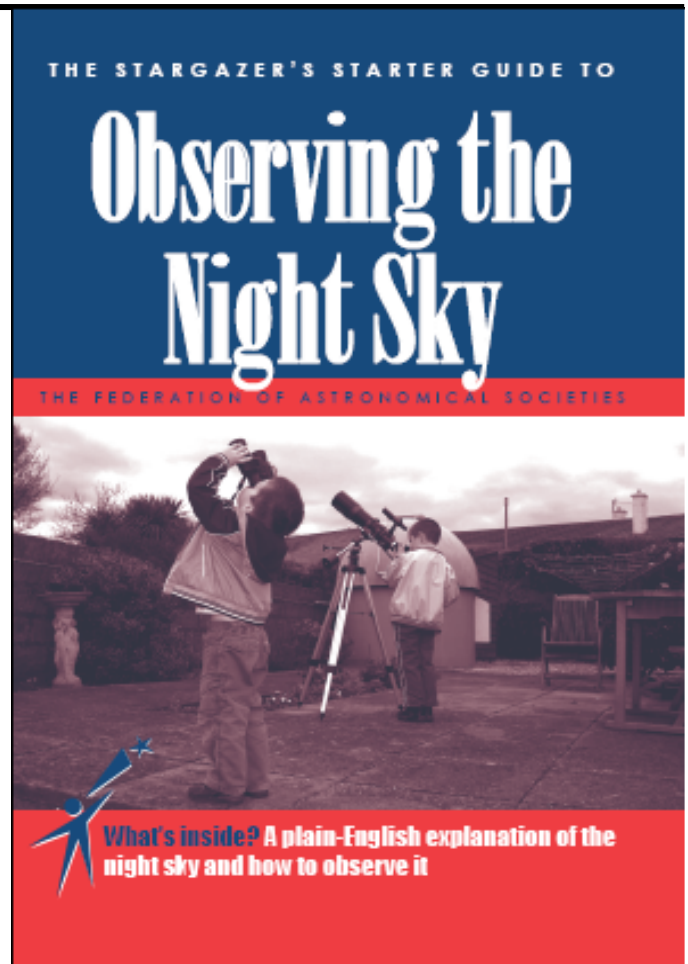
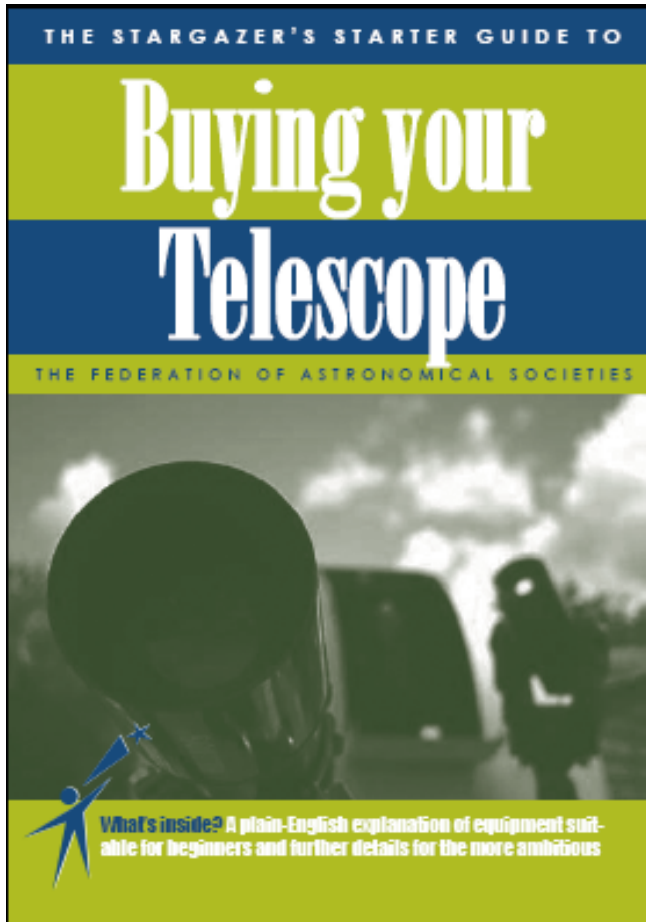
Image Of Eclipse Composite Courtesy Of Bob Samuel (Breckland As)

New FAS Publications

Following on from the launch last autumn of the first of 'The Stargazer's Guide To' range of booklets, the second title will be available by the end of April.

This title 'Observing the Night Sky' follows the first in the series 'Buying Your Telescope'.

These booklets are written as an introduction to various aspects of astronomy and are aimed at the absolute beginner, although those with a little more experience will be able to get something out of them as well.



In addition to advising the budding amateur astronomer, these booklets are targeted at providing a service, and perhaps a source of income, to the member societies of the FAS. The pricing structure is such that member societies should be able to make a modest profit, by selling them to members and perhaps the general public at suitable events. Please contact the FAS Secretary for pricing details.

Additional titles are being worked on and details of these will be released nearer the time of publication.

(Continued from page 3)

not be able to detect the planet. However, there are a bunch of different physical parameters that can make the planet much brighter. These include a stronger stellar wind (generally hotter, younger stars), a closer orbital distance (most exoplanets are closer to the star and some have orbital periods of days not decades) and a larger magnetic field strength (which relates to the mass, there are many exoplanets more massive than Jupiter) to name a few. If you run these numbers through the current exoplanet database then you are left with a handful of possible targets.

Many searches have now taken place with George & Stevens 2007 (shameless self plug!) currently producing the lowest noise level (at 150 MHz) – reaching close to the expected emission level but no detections. Unfortunately the current detectors do not have receivers at the frequencies required. As mentioned above for Jupiter we want to be looking at a frequency of around 30 MHz. Our capability will soon change with the advent of LOFAR (20 – 200 MHz) – a radio interferometer that will span across western Europe so we should soon expect the first direct detections of exoplanets albeit at radio wavelengths – so no pretty pictures....

WEBWATCH

As we all know, the extent of the world wide web has exploded in recent years. There are now so many sites that it is probably impossible to list them all. Now I realise that there is a lot of rubbish out there, but there are also many sites of great interest and which provide invaluable information and advice.

It is hoped that 'Webwatch' will become a regular and useful feature in future Newsletters. However to succeed it will require contributions from you, the reader.

To kick things off, I am listing a few of the sites which I think will interest many of you.

www.andyshotglass.com/introduction.html
www.mistissoftware.com/astromony/
www.ewellobservatory.com/
www.uv.es/jrtorres/index.html
www.minorplanetobserver.com/
www.thefirmament.nl/
www.astronomy-uk.co.uk/smf/index.php

Please let me know the addresses of sites which you think may have general or specific interest to other readers—ideally with a short note on what you think is of particular relevance in each site.

SOCIETY ROUND UP

- ABINGDON AS** www.abingdonastro.org.uk
2nd Mon at Methodist Church Hall, Dorchester Crescent, Abingdon
Email: chris.c.holt@ntlworld.com
Jun 9: t.b.a. Samuel George
- ALTRINCHAM & DISTRICT AS** www.astroadas.org.uk
1st Fri (exc Jul & Aug) at Scout's Building on Park Road, Timperley, Altrincham
Geoff Flood 0161 980 1675 email: geoffrey513flood@btinternet.com
- AS OF GLASGOW** www.astronomicalsocietyofglasgow.org.uk/
Meetings 3rd Thurs. at Room 345, Uni of Strathclyde (Montrose St entrance)
Email: DDegan@aol.com
- ANDOVER AS** www.andoverastronomy.org.uk
3rd Thurs (exc Aug) at Grateley Village Hall.
e-mail: secretary@andoverastronomy.org.uk
- AYLESBURY AS** www.aylesbury-astronomy.org.uk
1st Mon at the Observatory, Upper Wichendon, Aylesbury.
Email: sandymac@waitrose.com
- AYRSHIRE AS** <http://ayrastronomy.thesmallearth.com/>
1st Tues at Ayr College
email: gm0dig@hotmail.com
May 19: How to Observe the Sun Lyn Smith
- BASINGSTOKE AS** www.basingstokeas.org.uk/
4th Thurs at Cliddesden Primary School
email: john.stapleton@tesco.net
- BASSETLAW AS** <http://beehive.thisisnottingham.co.uk/bassetlawastro>
Meets at The Village Hall, Tylden Rd, Rhodesia, Notts. S80 3HL
Contact: Andrew Patten email: andrew_patton@talk21.com
- BATLEY & SPENDBOROUGH AS**
Every Thurs at Milner K Ford Observatory, Wilton Park, Batley
Contact: I Newsome 01924-443860 email: bevia11@hotmail.com
- BECKINGTON AS** www.basnet.org.uk
3rd Fri (exc Jul, Aug & Dec) at Beckington Baptist Church Hall, Beckington,
Contact: email: info@basnet.org.uk
- BEDFORD AS** www.bedsastro.org.uk
Last Weds, Bedford School, Burnaby Road, Bedford, MK40 2TU
Email: society@bedsastro.org.uk
- BIRMINGHAM AS** www.birmingham-astronomy.co.uk
Every Weds at Aston Uni. (Library, ATM, workshop, etc). Last Tues—lecture
Email: john@jspittle38.freereserve.co.uk
- BLACKPOOL & DISTRICT AS** www.blackpoolastronomy.org.uk
1st Wed of month at St Kentigern's Church Hall, Newton Drive, Blackpool
Contact: Terry Devon Tel: 01253-625975 email: info@blackpoolastronomy.org.uk
- BOLTON AS** www.boltonastro.org.uk
1st & 3rd Tues at Bolton TIC Centre on Minerva Road (nr Bolton Royal Hospital)
Secretary: Peter Miskiw. Email: petermiski@hotmail.com
- BRADFORD AS** www.bradfordastronomy.co.uk
Alt Mons in upstairs room at Eccleshill Library, Bolton Road, Bradford, BD2 4SR
or ring Hilary on 01274 6725710. tony@tony-west.freereserve.co.uk
Apr 28: Computer Night May 12: The Modern Day Visual Astronomer
Jun 2: Particle Physics and CERN Dr Lee Thompson
Jun 30: In Search of William Gascoigne David Sellers
- BRANNEL ASTRONOMY** www.brannelastronomy.com
1st & 3rd Fri at Brannel School, St Stephens, Cornwall.
Contact: Frank Johns, 01637-878020 e-mail: frank@laplace.demon.co.uk
- BRECKLAND AA** www.brecklandastro.org.uk/
2nd Fri at Recreation Centre, B1077 Watton Road, Great Ellingham
Contact: Rod Crockford. Email: rod_crockford@yahoo.co.uk
- BRIDGEND AS** www.bridgendastronomicalsociety.co.uk
2nd Fri (Sept-May) at Parc Slip Nature Reserve, Aberkenfig.
Email: clivedown@btinternet.com
- BRISTOL AS** www.bristolastro.org.uk
Every Fri at Bristol Grammar School, University Road
Contact: Simon Smith (Secretary), email: secretary@bristolastro.org.uk
- CALLINGTON CAG** www.callington-astro.org.uk
1st & 3rd Sat (exc Aug), at Space Centre, Callington Community College.
Beccy Watson; callintonastro@kimwatson99.fsnet.co.uk
- CARDIFF AS** www.cardiff-astronomical-society.org
Alt Thurs, Sep-Jul, at Dept Physics & Astronomy, Univ. of Wales, 5 The Parade.
David Powell (secretary), 029 2055 1704. Email CAS@ilddat.demon.co.uk
- CAROLIAN AS** www.carolianastro.org.uk
Contact: Chris Ashman 01562 743758. Email: info@carolianastro.org.uk
- CASTLE POINT AC** www.cpac.org.uk
Every Weds at St Michaels Church, St Michaels Rd, Daws Heath, Hadleigh.
Contact: 01702 434449. Email: secretary@cpac.org.uk
- CHIPPING NORTON AAG** www.cnaag.com/
3rd Mon
Robin Smitten 07900-858690. Email: robin@chippingnortontheatre.com
- CLACTON AS** www.clactonastrology.co.uk
1st Thurs (exc Aug) at Quakers House, Granville Road, Clacton-on-Sea. CO15 6BX
Contact David Pugh 01255 429849 e-mail dpugh@sky.com
- CLEETHORPES AS** www.cleethorpesastronomy.co.uk
Meetings held at the Beacon Hill Observatory, Cleethorpes, start at 7.30pm.
Paul Thompson 01472 233552 or e-mail paul@cleethorpesastronomy.co.uk
- CLYDESDALE AS** www.clydesdaleastro.org.uk
2nd Mon at Dunglass House, Ayr Road, ML11 9TU
Contact: Lyn Smith 07725 347711. e-mail: clydesdaleastro@hotmail.co.uk
- CORNWALL AS** www.CornwallAS.org.uk
2nd & 4th Thurs at The Godolphin Club, Wendron St., Helston.
Robert Beeman (01326-341164) Email: info@CornwallAS.org.uk
- COTSWOLD AS** www.cotswoldas.org.uk
2nd Sat at Millenium Hall, Bishop Road, Shurdington, Cheltenham.
Contact Duncan Willoughby (01452-416405)
- COVENTRY & WARWICK AS** <http://uk.geocities.com/covwaras/>
2nd Fri at Earlsdon Methodist Church Hall, Earlsdon Ave South, Earlsdon
email: cov_war_k_as@yahoo.co.uk
May 9: Pluto and the Outer Solar System Dr Mike Leggett
Jun 13: AGM
Jul 11: Introduction to Image Processing Nik Szymanek
Aug 8: Galaxies and Largest Structures in Universe Samuel George
- CRAWLEY AS** <http://uk.geocities.com/crawleyas/>
3rd Fri (exc July & Aug) at Ifield Community Centre. 7.30 pm.
Sec: Jim Swift 01293-882560 E-mail: cytron@btinternet.com
16 May: Russian Cosmonaut Training Nick Quinn
20 Jun: Astrophotography Nik Szymanek
- CROYDON AS** www.croydonastro.org.uk
2nd Fri during term time at Royal Russell School, Coombe Lane
Contact Paul Harper email: chairman07@croydonastro.org.uk
- DERBY & DISTRICT AS** www.derbyastronomy.org
1st Fri (exc July) at 7.30 at Friends Meeting House, St Helen's St, Derby
Contact: Dave Selve email: secretary@derbyastronomy.org/
May 2: AGM
- DONCASTER AS** www.donastro.org.uk
2nd & 4th Thurs at Church House—behind St George Minster, Doncaster.
Contact: Mrs Lesley Hardware on 01302-743352 email: secretary@donastro.org.uk
- DUMFRIES AS** Society web-site www.astronomers.ukscientist.com
Monthly meetings at the St. George's Churchhall, George Street, Dumfries
Email: lesley.burrell@btinternet.com or 01387 269762
- EASTBOURNE AS** www.EastbourneAS.org.uk
Saturdays at the Willingdon Memorial Hall, Church Street, Willingdon p.m. Con-
tact Bob Cripps, tel. 01323 732067, email bobwcripps@btinternet.com
- EAST RIDING ASTRONOMERS** www.eastridingastronomers.org.uk
3rd Mon at the Friends Meeting House, Quaker Lane, Beverley.
Contact Tony Scaife, email astrogen@astrogen.karoo.co.uk
- FALKIRK ASTRONOMERS** www.astronomy-falkirk.co.uk
2nd Weds (exc June/July) at Old Peoples Welfare Hall, Laurieston, Falkirk.
email: malcolm@astronomy-falkirk.co.uk
- FARNHAM AS** www.farnham-as.co.uk
Meet 2nd Tues at Willis Hall, Sandy Lane, Church Cookham, Fleet
Secretary: Barry Bellinger, tel. 07748766610 barry.bellinger@nokia.com
- FLAMSTEED AS** www.flamsteed.info
1st Mon at Royal Observatory & National Maritime Museum, Greenwich.
Contact: Friends Office. tel. 020 8312 6678 - jjbendall@btinternet.com
- FURNESS & SOUTH LAKELAND AS** www.furness-astrosociety.org.uk
1st Fri (exc Jul/Aug) at Trinity Church Centre, Warwick St. Barrow-in-Furness
Contact: Richard Alldridge, 01229 826864 Richard@alldridge.worldonline.co.uk
- GUERNSEY AS** www.astronomy.org.gg
Every Tues at the Observatory, Rue Lorier, St. Peters, Guernsey.
Contact: Debby Quertier. 01481 725760 quertiers@thomasmillier.com
- GUILDFORD AS** www.guildfordas.org
1st Thurs at Guildford Institute, Ward Street, Guildford
Contact: John Axtell. 01932 341036 johnaxtell42@aol.com
Apr 6: The Sky at night Experience Pieter Morpurgo
May 1: The Sky is Falling Dr Tony Marsh
Jun 5: Four Invented Planets—a god's eye view Dr Jack Cohen
- HAMPSTEAD GARDEN SUBURB AS**
Last Wed at Free Church Hall, Northway, London NW11.
Contact: Dianne Fishman 020 8458 4038 hgsas@dfish.demon.co.uk
- HANTS ASTRO.ORG** www.hantsastro.org
Contact: David Woods 023 9261 7092 email: subscribe@hantsastro.org
- HARROGATE AS**
Last Fri at The Green Hut, Harlow Community Centre, Harlow Ave.
patsyorio@tiscali.co.uk
- HAVERING AS** <http://homepages.tesco.net/~nik.szymanek/havering.htm>
3rd Wed at Cranham Community Centre, Marlborough Gardens, Cranham.
Contact: Frances Ridgley 01708 227397
- HEART OF ENGLAND AS** www.hoeas.co.uk
Last Thurs Furnace End Meeting Site, The Old Exchange, Shustoke, Warwickshire
email: hoeas@tiscali.co.uk
May 29 How to Build a Galaxy Prof Michael Merrifield
- HEBDEN BRIDGE AS**
Meetings at Hope Baptist Church Rooms at approx 4 week intervals.

Contact: Len Entwistle (01422-378368) or visit FAS Diary on FAS webpage.

HERSCHEL AS www.herschel-astro.org
Email: hasadmin@gmail.com

HIGHLANDS AS www.spacegazer.com
1st Tues at The Green House, Beechwood Business Park North, Inverness.
Contact: Eric Walker, Tel: 01349 863821 email: pat.williams@ndirect.co.uk

HULL & EAST RIDING AS www.heras.org.uk
2nd Mon at Room S25, Wilberforce Bldg, Uni of Hull, Cottingham Road, Hull
Contact: Sharon Long, President. E-mail: sharonel@hotmail.co.uk

HUDDERSFIELD A & P SOCIETY www.huddersfieldastronomy.org.uk
Every Fri at 4A Railway Street.
Email: marcus.armitage@ntworld.com

ILKESTON & DISTRICT AS
2nd Tuesdays at Hayloft Erewash Museum, Ilkeston, Derbyshire
Contact Mary McMulty, tel. 01298 78234 email: mintaca@msn.com

ISLE OF MAN AS www.iomastronomy.org
1st Thurs at the IOM Observatory, Foxdale.
Contact: James Martin e-mail: ballaterson@manx.net

JERSEY AC www.jerseyastronomyclub.org
Meets 2nd Mon at Sir Patrick Moore Astronomy Centre, Les Creux, St Brelade.
Contact: Eileen Besnard. 01534-860802 e-mail: hakmat@jerseymail.co.uk

KIELDER OBSERVATORY AS www.kielderobservatory.org
Lyn Henderson. Tel: 0191-4261708 e-mail: lynhenderson@blueyonder.co.uk

KNOWLE AS www.knowleastro.org.uk
1st Mon (exc Aug) at St George & St Theresa's Parish Centre, Dorridge, Solihull.
Contact: Nigel Foster. Tel: 01676-535941 e-mail: nftest00@hotmail.com

LEEDS AS
2nd & 4th Wed at Centenary House, North St, Leeds LS2 8AY
Mailto: xavier@leedsastronomy.org.uk or xvermeren@gmail.com

LEICESTER AS www.leicester-astronomical.co.uk
Meets 2nd and 4th Tues 19:30. National Space Centre, Exploration Drive, Leicester
Contact: Chris Gutteridge 0116 270 0596 chris@gutteridge.co.uk

LETCHEWORTH & DISTRICT AS
Meets last Wednesday of the month at Plinston Hall, Letchworth: 7:45pm
Contact: Nick Ellis e-mail: ellis.nick@virgin.net

LIVERPOOL AS www.liverpoolas.org
3rd Fri at The Gibberd Room, The RC Metropolitan Cathedral, Liverpool L3 5QW
email: clarklunar@aol.com

LLANDRILLO COLLEGE AS www.manastro.co.uk/nwgas/llandrillo
2nd Tues at Lecture Hall, Llandrillo College
Contact: Jean Smith e-mail: jsmith2859@aol.com

LOUGHTON AS www.las-astro.org.uk
Every Thurs in the Scout Hall, Loughton Lane, Theydon Bois, Essex.
Contact Jerry Workman (0208-507-7568)

LOWESTOFT & GT YARMOUTH RA (LYRA)
2nd Tues at Waveney Gymnastics Centre (access Notley Rd).
Richard Chilvers: 01502 57401 email: good.goat@tiscali.co.uk

LUTON AS www.lutonastro.org.uk
Last Thurs at Putteridge Bury Campus, University of Bedfordshire
Contact: Geoff Mitchell. Email: user998491@aol.com

MACCLESFIELD AS www.maccastro.com
1st Tues (exc Jan) at Jodrell Bank Observatory & 3rd Tues at Goostrey Village Hall.
email: secretary@maccastro.com

May 20: Radio Telescopes Prof Sir Francis Graham Smith
Jun 17: Building a Cosmic Shield Dr Benny Peiser
Jul 15: Supernovae Prof Sam Falle
Sep 16: tba Prof Phil Diamond

MANCHESTER AS www.manastro.co.uk/
3rd Thurs Godlee Observatory, Sackville Building, University of Manchester,
massecretary@manastro.co.uk

MANSFIELD & SUTTON AS www.sherwood-observatory.org.uk/
Sherwood Observatory, Coxmoor Rd, Sutton-in-Ashfield, NG17 5LF
Cathy Beaumont 01623 552276 secretary@sherwood-observatory.org.uk/

MARCHES A G www.spaceguarduk.com/mag
2nd Fri at Spaceguard Centre, Knighton, Powys. LD7 1LW.
Contact: Michael Birch 01597 850010 zakdorn@hotmail.com

MELTON & DISTRICT AS
Meets: Monthly at Village Hall, Main Street, Gaddesby, Leics. At 8.00pm
Contact: Tomy Pacey (Secretary) email: james.pacey@ntworld.com

MEBOROUGH & SWINTON AS www.msas.org.uk
Every Thurs at Swinton Working Mens Club, 4 Station Rd, Swinton. S64 8AU
Contact: Shaun O'dell (Secretary) 01709-579529

May 15: Landing the Shuttle Phil Muffett
May 29: Search for Alien Life Dr Simon Goodwin
Jul 17: tba Paul Money
Aug 7: Practical Physics Lee Thompson
Sep 18: Formation of Binary Stars Thijs Kouwen

MID KENT AS www.mkas-site.co.uk/
2nd and last Fri at The Bredhurst Village Hall, Hurstwood Road, Bredhurst, Kent
email pwparish54@yahoo.co.uk

MILTON KEYNES AS www.mkas.org.uk
Alt Fri at Rectory Cottages, Church Green Road, Bletchley, Milton Keynes
Contact: Mike Leggett Tel: 01908 503692 Email: mike.leggett@fsmail.net
9 May: Great Comets in History Martin Lunn

MORAY AC, SIGMA www.sigma-astro.co.uk

1st Fri at Birnie Village Hall, Thomshill, Elgin, Moray.
Ian Brantingham 01466 771371 or ian@branters.freereserve.co.uk
May 2: Video Astronomy Andrew Elliot

NEWBURY AS www.newburyas.org.uk
1st Fri (Sept-June) United Reformed Church Hall, Cromwell Place, Newbury.
email: monjohn.balstone@virgin.net
May 2: Observing the Sky in H Alpha Prof Janet Drew

NORTH ESSEX AS <http://www.neas.me.uk>
3rd Thurs (exc Aug & Dec) at Henry Dixon Hall, Rivenhall End, Witham.
Contact Neil Short e-mail: njs.int@btinternet.com

NORTH NORFOLK AS <http://www.nnas.org>
At General Townend Club (Royal British Legion), Cattle Market St, Fakenham.
Email: japrocker@aol.com

NORTHANTS AA www.naastronomy.com
1st Tues at Church House, St Bodolphs Rd, Barton, Seagrave, Kettering and on 3rd
Tues at Newton Field Centre nr Geddington.
Contact: Steve Williams 01933 650331.

NORWICH AA www.norwich.astronomicalsociety.org.uk/
3rd Fri at The Seething Observatory, Toad Lane, Thwaite St Mary
David Balcombe 01953 602624. email: nassec@tiscali.co.uk

NOTTINGHAM AS <http://beehive.thisisnottingham.co.uk/nottinghamastro>
1st Thurs British Geological Survey, Nicker Hill, Keyworth, Notts. NG12 5GG.
Contact: Paul Stocks. email: nottinghamastro@yahoo.co.uk

ORWELL AS www.oasi.org.uk/
Weds at Orwell Park Observatory, Nacton, Ipswich IP10 0ER
Roy Gooding (Secretary) 01473-462977 email ipswich@ast.cam.ac.uk

PAPWORTH ASTRONOMY CLUB
1st Wed at Vinter Room, Vinter Close (off Elm Way), Papworth Everard
Peter Sandford 01480 830729, email peter@cheere.demon.co.uk

PLYMOUTH AS
2nd Friday at GK Centre, Alfred Street (off Lockyer St), Plymouth
Alan Penman (Chair) 01752-338491 email: oakmount12@aol.com -

PETERBOROUGH AS www.pas-stargazer.co.uk
1st Tues at St Kingburgh Church Hall, Castor, Peterborough.
Gerry Holland 01733 772236 Email: gerry@comrep.freereserve.co.uk

PORT TALBOT AS
1st Tues at Mozart Drive Community Centre, Sandfields, Port Talbot.
Contact: Andrew Short (secretary) - phone 01639 765146.

RUGBY & DISTRICT AS www.rugbyastro.co.uk
3rd Sun in Three Horseshoes Hotel, Sheep Street, Rugby. CV21 3BX
Contact: Julian Leckie Tel: 01788-572152 email: julianleck@aol.com

SALFORD AS www.salfordastro.org.uk
1st Wed at The Observatory, Chaseley Road, Salford
Contact: Kath Radford - 0161 794 3179. email:
mail@howarddazeley@demon.co.uk

SCARBOROUGH & RYDALE AS www.scarborough-as.org.uk
3rd Fri (exc Aug & Dec) at East Ayton Village Hall, Willson Lane, East Ayton
Contact 01723 500389 email: gwenfrangwernan@btinternet.com

SEKAS (SOUTH EAST KENT) www.sekas.co.uk
Tony Bennet 01843-831079 Secretary@sekas.co.uk

SHETLAND AS
Monthly, South Mainland, Shetland
Contact: Peter Kelly Tel: 01957 733242 theglebe@zetnet.co.uk

SHANNONSIDE AC <http://go/to/sac>
1st Wed at 8.00pm, Room 206, Mary Immaculate College, Limerick
Contact: Tony O'Hanlon. 00353-65-6892221 e-mail: tylazy@yahoo.ie

SHROPSHIRE AS www.shropshire-astro.com
1st Sat at Rodington Village Hall
Contact: Mark Wiggin. e-mail: mark.wiggin@blueyonder.co.uk

SOCIETY FOR THE HISTORY OF ASTRONOMY www.shastro.org.uk
Contact: Stuart Williams, secretary@shastro.org.uk

SOLENT AMATEUR ASTRONOMERS www.delscope.demon.co.uk
3rd Tues. Room 8, Oaklands Centre, Fairisle Road, Lordshill, Southampton
Ken Medway. 02380-582204 ken@medway1875.freereserve.co.uk

SOUTHAMPTON AS www.southampton-astronomical-society.org.uk
2nd Thurs at Edmund Kell Unitarian Church Hall, Bellevue Road
Email: secretary@southampton-astronomical-society.org.uk
May 8: So you want to be an astronomer? R F Turner
Jun 12: Jets and stuff coming out of black holes Christian Kaiser

SOUTH Lincs A & G S www.solags.co.uk
3rd Frid (exc Jul/Aug) at St Mary's Church Hall, Pinchbeck, Spalding.
Martin Anderson 01406-380003 email: secretary@solags.co.uk

SOUTH WEST HERTS AS www.swhas.org.uk
Shirley@atwhitelands.freereserve.co.uk

STAFFORD & DISTRICT AS www.freewebs.com/philiphall/
3rd Thurs at Weston Road High School, Stafford. ST18 0YG
Contact Joe Jaworski, 0543 686043

STRATFORD UPON AVON AS www.astro.org.uk
Home Guard Club, Tiddington, Nr Stratford upon Avon.
Mike Whitecross 01789 731784

SUNDERLAND AS www.sunderlandastro.com
2nd & 3rd Sunday Wildfowl & Wetlands Trust, Washington
Graham Darke 0191 415 2625 darke@bun.com

SWANSEA AS www.swanastro.co.uk
2nd & 4th Thur at Lecture Theatre C, Science Block, Uni of Wales, Swansea

(Continued on page 18)

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01792-299311

TAVISTOCK AS

The Physics Laboratory, Kelly College. jewels on 07877-448117

THE LEWES ASTRONOMERS www.lewesastro.org.uk

1st Wed at Southover Grange, Southover High St. Lewes. BN7 1TP.

Contact: Alice Smol 01273-477441 email: alice.smol@tesco.net

May 7: TBA

Dr David Parkinson

Jun 4: Occultations

Gordon Taylor

THURROCK AS www.thurrockastronomy.com

First Wed (exc Aug) at Methodist Hall, High Street, Horndon-on-the-Hill SS17 8LN

Roy Hookway Tele:01375 676602 email: roy.hookway1@btinternet.com

May 7: Supernovae

Tony Sizer

TIVERTON AS www.tivas.org.uk

Fri at St Aubyn's School, Blundells Road, Tiverton.

Neil Purves 01884-277425

TORBAY AS www.torbayastro.org

1st & 3rd Thurs - Sep to Apr at Torquay Boys Grammar School.

Dennis Humphreys on 01626 367280

UNIVERSITY OF BIRMINGHAM AS www.astrosoc.org.uk

We are a University society but all are welcome.

Contact Kym Goss, email: kjg494@googlemail.com

USK AS www.uskastronomicalsociety.org.uk

Contact: jbprince9@yahoo.co.uk

VECTIS AS (Isle of Wight) www.wightskies.fsnet.co.uk

Parish Hall, Town Lane, Newport.

rosemarypears@aol.com

WADHURST AS www.wadhurst.org.uk/was/

Third Wed at the Methodist Church Upper Room, High Street, Wadhurst.

Contact: G G Rathbone, 13 Brookfield, Kemsing, Sevenoaks, Kent. TN15 6SQ

WALSALL AS www.walsallastro.co.uk

Every Thurs at the Rushall Olympic Football Club, Dales Lane, Walsall.

Alan Ledbury 01922 632624 email: g.ledbury@blueyonder.co.uk

WESSEX AS www.wessex-astro-society.freeserve.co.uk

First Tues - Allendale Centre, Wimborne, Dorset.

Alan Jefferis, e-mail alan@ajefferis.freeserve.co.uk

WEST CORNWALL AS www.westcornwallastrosoc.org

First Wed at St Michaels Hotel, Falmouth, and Third Thur at the CPR Learning Centre, Camborne

Robin Wadding email: robinwadding@westcornwallastrosoc.org

WEST OF LONDON AS www.wolas.org.uk

Second Mon (exc Aug) at: Christ Church Chapel, Redford Way, Uxbridge AND at St John's Ambulance Hall, North Harrow (odd months)

Duncan J Radbourne. Email: duncan.radbourne@gmail.com

WEST YORKSHIRE AS www.wyas.fsnet.co.uk

Every Tues at 'Rosse Observatory', Carlton Rd, Pontefract.

Ken Willoughby 01977 795535. Email: ken.willoughby@btinternet.com

WEYMOUTH AC www.weymouthastronomy.co.uk

Fourth Fri at The Old School Rooms, Upwey, DT3 5QE (opposite Wishing Well)

Nigel Dalley 07968-115002 Email: webmaster@weymouthastronomy.co.uk

WILTSHIRE AS www.wasnet.co.uk/

Contact: Andrew Burns Email: anglesburns@hotmail.com

WIGTOWNSHIRE AS www.wigtownshire-astro.org.uk

Second Wed Glenamour, Newton Stewart.

Robin Bellerby 01671-404387 / 07966-413679 Email: robin@glenamour.com

(THE) WEBB SOCIETY www.webbsociety.freeserve.co.uk/

Contact: Stephen Rayner Tel: 01189 817616

e-mail: stephen.rayner@tesco.net

WHITE PEAK ASTRO OBS GROUP www.wpaog.co.uk/

Hopton Cottage, Hopton, Top Hopton, Derbyshire, DE4 4DF

Contact: Robin Spencer. Email: thespencers@care4free.net

WOLVERHAMPTON AS www.wolvas.org.uk

Alt Mon, between Sep & Apr Beckminster Methodist Church Hall, Birches.

Sydney Crump (tel 01299 871606), email secretary@wolvas.org.uk

WORTHING AS

Graham Boots meeting_secretary@was.org.uk 01903 505346

WYCOMBE AS www.wycombeastro.org.uk

Third Weds at Woodrow High House, between High Wycombe and Amersham.

Jackie Harris. Email: www.wycombeastro.org.uk

May 21: Radio Astronomy

Alistair Grieve

Jul 16: Do we need a theory of gravity?

Dr Stuart Clark

YORK AS www.yorkastro.co.uk

Denham Room, The Priory Street Centre, York.

Martin Whillock on 01347 821849 email: martin@whillock.me.uk

May 16: Lady Astronomers

Dr Allan Chapman

NOTICES

2008 FAS Convention returns to Cambridge

The 2008 FAS Convention is to be held on Saturday September 12th. at the Institute of Astronomy, Madingley Road, Cambridge.

The speakers for the day currently include:

Prof. Andy Fabian (Cambridge)

Dr. Somak Raychaudhury (Birmingham)

Dr. Barry Jones (OU)

Nik Szymanek.

Traders/exhibitors booked so far include: Aurora Books, Jack Martin, Sky's the Limit, AWR, SPA, LDAS (Jerry Stone), Greenwich and Cambridge University Press

Plus a tour of the Observatory with its historical telescopes.

..... and of course—the Raffle

As last year advance tickets can be obtained from Callum Potter.

Volunteers Wanted for FAS Council

There are vacancies on the FAS Council for volunteers to undertake the duties of:

1. Honorary Secretary
2. PR/Marketing for the FAS
3. Publications

Details of what is involved with each position can be obtained from Sam George or Callum Potter (contact details on the Page 1)

The FAS relies on volunteers for its continued operation to provide a service to your society.

Why not volunteer to do your bit?

LIST OF OFFICERS 2005/2006

President, Secretary, Treasurer & Newsletter Editor - See cover

Vice President: Richard Sargent :vicepresident@fedastro.org.uk

PLI & Distribution: Eric Hutton plisecretary@fedastro.org.uk

Membership Sec: Shaun O'Dell membership@fedastro.org.uk

Minutes Sec: Richard Sargent

Webmaster: Gary Gawthrop
webmaster@fedastro.org.uk

Chilterns Group : Ian Coulson chilterns.rep@fedastro.org.uk

North West Group : Richard Sargent

West Midlands : Andy Salmon
west.midlands.rep@fedastro.org.uk

Yorkshire Group : Paul Harpera

Deadlines for submission for the next newsletter:

Summer 2008 — 18 July 2008

Please remember to send ALL items to the Editor, Frank Johns. Regrettably material can only be returned if supplied with a SAE.

Details of meetings mentioned in the Society Roundup should be confirmed before travelling. All programmes may be subject to change with no notice. The FAS can accept no responsibility for any inaccuracies. However if the details of your society are incorrect, or indeed if you aren't included, please send details to the Editor.