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# Federation of Astronomical Societies

## EDITORIAL RAMBLINGS

As we move into the 1990's, the old challenges are renewed and enlarged. In which directions should members of local societies develop their communications skills?

With our teachers in schools being faced with the task of teaching some astronomy, a subject many of them may never have thought about before, societies can push their more articulate members into a new and vital role; that of educating the educators. One of the first to step in this direction is Bernard Abrams of Cotswolds AS with his book "Astronomy" in the Extending Science Series published by Stanley Thornes and reviewed on page 4. Societies everywhere need to advertise their presence locally, so that teachers in need can make personal contacts.

Arriving all too quickly is yet another National Astronomy Week - in November. This will get national publicity and the Post Office is issuing commemorative stamps on October 16 to mark the centenary of the British Astronomical Association and the bicentenary of the Armagh Observatory. What better publicity could we hope for? Societies will no doubt do their bit locally to excite the public in their area to a better awareness of the universe beyond. On page 3 of this issue are some hints on organising an Open Week as experienced by the rapidly growing Hampshire Astronomical Group. This can be a money spinner too so it is time to start making detailed plans for NAW.

Europe too is now part of our natural habitat with many of our members taking in Puimichel in Southern France when they plan an observing trip.

Thanks to FAS Council member, Tony Ireland, I was given an introduction to the Chicago AS when I made a visit to that city last year. I was made very welcome. Having a common language with our American colleagues is a good reason for establishing links. Societies might consider twinning with societies in America. They are very welcoming and do extend their horizons into more southerly skies if a visit is possible.

Another English speaking astronomical society is South Canterbury AS of New Zealand, whose president, Roger Fagg would love to make contacts with amateurs in Britain. Might this be a chance for radio hams to burn the midnight oil calling New Zealand? His address is 15 Ranfurly Street, Timaru, South Canterbury, New Zealand.

I gave up making New Year Resolutions decades ago, but if you still live in hope of self-improvement, then why not make the 1990's the years you hope to communicate your love of astronomy to anyone prepared to listen?

Postscript: This issue is rather later than intended, owing to continued illness amongst the principal contributors. Sorry.



## ASTROPHOTOGRAPHY

Geoffrey Johnstone

Anyone venturing into pictorial photography for the first time must be overwhelmed by choices caused by the amazing variety of equipment and films available. One of the problems with photography is the vast number of variables such as film speed, aperture, focal ratio, exposure, depth of field, development, to name but a few. The astrophotographer has to contend with even more, particularly the dreaded low intensity reciprocity failure, sky fog and 'seeing'.

It seems to me that to reduce the problems to a common denominator it would be fair to say the following. To obtain a photograph of a deep sky object showing as much detail, or the faintest possible star, the exposure should be such that any further increase would render no further improvement. So what stops a further

**GALAXIES IN LEO PHOTOGRAPHED 1989**  
March 11. Photographer Geoffrey Johnstone.  
M65 and M66 showing Supernova 1989B in M66. 10 minute exposure on gas hypered Kodak TP2415 254mm f/5 reflector.

improvement? One is the failure of the film, that is the reciprocity problem, and there is not a lot you can do about it without advanced techniques. The second is sky fog, caused by your own local conditions, again largely out of your hands, except that, when seeing is at its best, say after the passage of a cold front, sky fog will be at its least.

Perhaps we should all test our films so that we on the one hand, get the best from them, and on the other hand, don't waste time on long exposures that create little improvement. To test a film in this way it is suggested that you make doubling exposures, say from two minutes upwards, until no useful gain is shown.

## PRIZE WINNERS AT THE FAS CARDIFF CONVENTION 1989 September 30

### Photography

The prize winners were selected on entries which represented technical difficulties and showed thought. First winner was J Gilbert who won a voucher to be spent with I R Poyser (Engineering) and the second winner was M Bailey who won a book from Earth and Sky. Society Magazines/Newsletters

All magazines received for the Round Up together with others offered on the day went into the competition. The judges looked for society news, current space affairs, observation reports, photographs and other illustrations. Of less importance was the quality of the printing as this is difficult for smaller societies who may

prefer to spend their cash on other astronomical projects. The first prize of a year's free subscription went to Norwich AS and the second prize, a book donated by Highfield Books, went to Liverpool AS.

**PHOTOGRAPHERS ARE INVITED TO BRING THEIR BEST IMAGES TO THE FAS CONVENTION IN COVENTRY ON SATURDAY MAY 5 FOR DISPLAY AND JUDGING.**

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## SOCIETY NEWS ROUND UP

**NORTH EAST LONDON AS** At the October meeting, Bernard Beeston gave a talk about weather, which has such an influence

measure astronomical. Another object of Bernard's talks was photography, when he described the CCD, a relatively new type of imaging device found in home video and electronic still cameras and now replacing photographic film for many purposes in astronomy. He has also carried out an investigation into the use of astronomical images for advertising non-astronomical products.

**NORWICH AS** The society has had extraordinary success with a series of open evenings. Now however, they are running out of themes and the organisers are looking for suitable display material to supplement observing sessions. The 30-inch mirror has been re-silvered, the damp-proof enclosure for the electronics is underway and the digital position displays are being designed and built. They are still looking for a good finder to use as a tracking scope so that the telescope can be used for photography. Attention will turn next to the 10-inch telescope and dome. A second radio dish is being erected and this will require a more sensitive receiver.

**NOTTINGHAM AS** A few Nottingham members attended the FAS convention in Sheffield and enjoyed it. The observatory design team ran into some slight problems getting the dome to revolve smoothly but they were making a trip to Chesterfield AS to see how they had dealt with the problem there. Several members attended the Lincoln AS meeting in September and one member combined the trip with a visit to Batemans Brewery, an old Lincolnshire brewery which still uses traditional methods to brew fine beers.

**ORWELL AS** One of the major fund-raising and publicity events of the year was the observatory open weekend in October when the observatory was open to the public on four nights. Despite Spode, the weekend was very successful with over 200 visitors during the weekend, 100 attending on Sunday night when the sky was at its worst. The visitors saw Saturn and the Moon through telescopes when possible and had slide shows when it was cloudy.

**SALFORD AS** Members observed the lunar eclipse in August and received a mention on the TV "Sky at Night" as Ken Irving was one of only seven people in the country to video the occultation of 28 Sag. Both the University of Arizona and NASA have expressed an interest in making a video of the event. The society held a display at the Salford Show.

**SAGAS** The summer astromap organised by Norman and Margaret Fisher was a tremendous success, as in past years. Over the fifteen night period, 138 people camped for at least one night. The autumn meeting was hosted by Brighton and it included an astromap where members of the SAGAS group could buy and sell their astronomical and photographic equipment.

**SOUTH EAST KENT AS** The society has now completed its telescope making classes with an impressive one 10-inch, one 8-inch and five 6-inch Newtonian reflectors all completed and operational. Members report excellent results with them and further classes will be held. Work on the society's 10-inch is nearing completion. Last April, Norman Fisher of Croydon AS gave an interesting talk on solar observing. In July a visit was made to the Science Museum and Planetarium. The Perseid barbecue party was well attended with many meteors observed. Several members attended the FAS convention in Cardiff and enjoyed the good weather, the lectures and tours. (See you next year!) The year closed with a quiz and cheese and wine party.

**SOUTH WEST HERTS AS** The society took a stand at the Kings Langley school fair. A 'knockout' competition took place to judge the

best photograph of the lunar eclipse. In all 32 slides were entered taken with a wide range of equipment. The winner, Colin Reeve, used a 12-inch reflector at prime focus and also captured the star 45 Capricorni just as it emerged from eclipse. A barbecue was held at High Top Observatory in July with about 50 people attending making a profit of £30 for the society. Although some cloud intervened, most guests enjoyed views of the moon and Saturn through various instruments.

**STEVENAGE AND DISTRICT AS** President Iain Nicholson was the guest speaker at the July meeting and he spoke about the Big Bang. Superscopes gave an exhibition and lecture at one of the meetings giving members chance to purchase equipment and learn about telescope design. Star parties were held in the summer to coincide with the Perseid maximum.

**STOCKSBRIDGE AS** Newcomers to the FAS, this society was formed after evening classes held at Stocksbridge College two years ago. The group meet fortnightly, have guest speakers and observe when weather permits. The focus is on amateur interest and activity in the Barnsley and North Sheffield area. The first star party was held at Edale in Derbyshire, in early October. Fine weather, two clear nights and plenty of good humour ensured a really successful weekend and a flying start to their first year as a society. Good use was made of member's telescopes. In November, the group visited Jodrell Bank. A full programme of guest speakers, quizzes, star parties and visits to places of astronomical interest is planned for 1990. Details from Mr Chris Milton, 765 Manchester Road, Stocksbridge, Sheffield S30 5DQ.

**WEST OF LONDON AS** Robin Scagell discovered the dark skies of Pembrokeshire last August. A country lane near Tenby provided the clearest skies he had seen from this country for 25 years. Jupiter appeared as bright as a house light when only a degree or two above the horizon and aurora flickered low down in the north. As the area is only a five hour drive from London, the society are considering holding the next observing weekend in Pembrokeshire.

**WEST YORKSHIRE AS** During the summer a small band of members refurbished the observatory. For the first time since the observatory was opened the telescope was completely stripped down, cleaned, repainted and reassembled. The rest of the building has also been cleaned, touched up and repainted. The first leg of the Bradford v WYAS quiz took place recently with WYAS taking a 19 point lead which will be useful for the return match. WYAS internal astromid took place in July and Ken Willoughby is the new champion and will represent WYAS in the Yorkshire Astromid in 1990.

**WORCESTER AS** The society had a brilliant eclipse. But they did not see much of it as they were involved with Crayford Manor AS and an international group in observing and timing the grazing occultation of 44 Sag which took place at the same time.

**WORTHING AS** A new record was announced in "Sky and Telescope" for the Crescent Moon Club when on 1989 May 5 the new moon was observed at 13 hours 28 minutes old. The Worthing record is 23 hours 26 minutes past new. The solar section report a slight decrease in activity during July compared with previous months. The lunar section report with amazement the good behaviour of the weather and the unexpected darkness of the eclipse recorded by some observers. The magazine also reports on the 'golden rain' of the Perseids which appeared more yellow this time.

**PAM AND MARTIN CHICK**

Please send your society news to Mr and Mrs Chick at 2 Magnolia Way, Chandler's Reach, Efail Isaf, nr Pontypridd, Mid Glamorgan CF38 2NJ

## \*\*\*\*\* HOW TO ORGANISE A SUCCESSFUL OPEN WEEK

Roy Dodd, Hampshire Astronomical Group

The Hampshire Astronomical Group have gained a good deal of experience over the past few years in organising this kind of event, and has established a set of important guidelines, which, if followed, should assist societies in staging a successful event.

Select a suitable astronomical event well in advance as long term planning is essential - eg a favourable apparition of a celestial object.

Ensure that the selected date does not clash with another major local or national event as this will have an adverse effect on attendance figures.

Contact the local district authorities and constabulary for the necessary approval and support.

Ensure that adequate insurance is available for public liability and equipment protection.

Make the necessary arrangements for the event to be well publicised (a) Produce a press release, comprising of one A4 sheet only, giving full details of the event; (b) Distribute this to the media at least two weeks before the event.

This should be followed up by personal contact a little nearer the event; (c) Produce and distribute posters to local establishments such as public libraries, colleges and schools.

Provide temporary road signs which should be strategically placed to direct both casual and intended visitors to the site of the event.

Ensure that there are going to be adequate members available throughout the week to man instruments (which should never be left unattended) and to act as guides/stewards.

Duty members should be readily distinguished from the visitors by wearing white coats, armbands etc.

Ensure that good communication is provided between stewards situated at the entrance and other strategic locations, possibly with personal radio sets.

A suitable entrance fee should be charged allowing children - a reduced rate. It is recommended that duplicate raffle/cloakroom tickets are used as a means of controlling and determining the number of visitors. This may be very important where space is limited. The offer of a free raffle prize using the tickets should be considered as an added attraction, perhaps a reasonable pair of binoculars.

Consideration should be given to providing the following facilities as necessary: (a) Ample car parking, (b) Toilets, (c) Refreshments either provided by the society or by contracting local mobile caterers/hot dog caravans etc, and (d) footpath lighting or markers.

1 Conifer Close, Cowplain, Portsmouth,  
Hants PO8 8AF

## \*\*\*\*\* THE WILLIAM HERSCHEL SOCIETY,

Herschel House, 19 New King Street, BATH, BA1 1LA wishes to announce the Annual William Herschel Lecture to be held in the Pump Room, Bath on Friday, March 9 at 7.30pm. With Patrick Moore in the chair, the address will be given by Professor Alec Boksenberg, under the title "Bonfires of the Cosmos - Creation's Cradle". Tickets, price £2.50, will be available after February 1 from the secretary at the above address.

**MARS, THE NEXT STEP;** by A E Smith  
Published by Adam Hilger @ £12.50 in paperback

This is a highly readable book which takes the reader logically through the phases of Mars exploration and possible future explorations. Smith begins by describing the physical properties of Mars to us and follows with a resume of past explorations with unmanned craft. After reviewing where we have been the author draws conclusions from the results and presents us, in the bulk of the book, with current plans, drawn in the main from NASA sources, for future manned explorations of the planet. The book ends with a review of the possibilities of "terraforming" Mars at some distant future date.

The text is liberally sprinkled with black and white pictures which complement the descriptions of the missions being envisaged.

The few colour pictures in the book contain no radically new views, to this reviewer at least.

Overall, Smith presents Martian exploration as something which will happen rather than a dry study of possibilities.

A bibliography is provided for further reading.

The only major gripe against the book is the price, which for a paperback book does seem steep.

Neville Kidger; 60 Denshaw Grove, Morley, Leeds LS27 8SB



Photograph by Bernard Abrams of Galaxy M82 in Ursa Major. 10" reflector 5 mins Tri-X

**ASTRONOMY:** Selected Topics (extending Science 17) ; Bernard Abrams and Patrick Moore pp128  
Stanley Thornes Publishers; Price £4.60 soft cover

This is an excellent book aimed at the pupil who wishes to learn astronomy. It will be of great assistance to both teachers and pupils alike. It covers all topics most thoroughly so as to give one an opportunity to extend ones knowledge to the levels of a first examination option in physics, or to full examination course in astronomy.

Both theoretical and practical study is covered, including projects and questions so that teachers can check the pupils' work and ensure they understand things. Suggested observational work is included, though large telescopes are said to be unnecessary as any observations can be put to good use.

The first eight chapters are methodically arranged so that the topics being studied can be applied to the type of course being taken. At the end of each chapter are questions and astronomy word puzzles. For example: an

asteroid is discovered with has an orbital period of eight years. Measured in astronomical units, what is its mean distance from the Sun? Or, if one star appears eight times brighter than another, calculate the difference in their apparent magnitudes.

Chapter 9: "Images from Space;" covers the use of optical systems from a simple telescope to the highly sophisticated Very Large Telescope (VLT). The VLT is a European scheme that intends linking up four giant eight metre optical reflectors by computer control at a cost of '130million, a system which could be operational by the year 2000. Related questions are "Can visual observations be made using a Schmidt instrument? If not why?"

Chapter 10: "Spaceflight" demonstrates rocket propulsion and covers satellites, various orbits, the Hubble Space Telescope and manned space flight including the Space Shuttle. Also included are the gravity assisted techniques used to send planetary probes through the Solar System, such as the Voyager missions to the outer planets.

The book also features a number of high quality colour photographs, with line drawings by Paul Doherty.

Finally, the book has excellent lists of data including future dates of solar and lunar eclipses and addresses of national astronomical organisations.

Only one or two typographical errors can be found, for example, "gamma" should read "lambda" page 91 line 2, but such do not detract from the usefulness of the book.

Having read and studied the book, I consider it to be of excellent value to all who wish to study astronomy.

John Fletcher, Mount Tuffley Observatory, Gloucester, GL4 0QT



Photograph by John Fletcher taken on Jupiter 9-11-89 showing Jupiter without the SEB. Aperture 25cm, 6 seconds on Tec Pac 2415 BW film with a "B" filter at 450 nm.

**SIDEREUS NUNCIUS** or The Sideral Messenger. Galileo Galilei.  
Translated with introduction, conclusion and notes by Albert van Helden.  
University of Chicago Press. ISBN 0-226-27903-0

This is a book which anyone interested in astronomy could enjoy. I found it most stimulating.

The original work by Galileo would be very heavy going to most of us today, but Albert Van Helden has translated the Latin text of Siderius Nuncius into an easily readable form. Not only that, he has written an introduction which sets the scene of the age in which Galileo was working. He tells us that the stage which lens-makers had reached and the invention of early spyglasses made Galileo's work possible, but the social and religious

background of the time are emphasised too as it was important that he knew how to go about getting his work accepted without landing himself in trouble. Throughout the book there are helpful footnotes and at the end a conclusion which follows the book by discussing how it was received in the scientific religious and social circles. At that time all noblemen had their team of scientists and some of these received the work scathingly. I can understand why he did not write an updated or improved version as he had originally intended.

Now to turn to the heart of the book Galileo's work. He starts by praising his Patron Cosimo II. This is followed by permission to publish from the Council of Ten. He tells how he experimented with improving spyglasses which enabled him to get a 20-power instrument. He first explored the surface of the Moon and came to the conclusion that there were mountains by observing the way light gradually moves across the face. He noticed there were two types of spots, large with light-coloured surface and small with a dark surface. He also explained Earthshine. Then I looked at the stars, he was able to say that stars appear bigger naked-eye than would be expected because they twinkle and they therefore do increase as much in size as expected when magnified. He looked at the Milky Way and declared that it was made up of innumerable stars and that nebulous stars were swarms of small stars. When he looked at the sword Orion he did not see any nebulosity, which interesting because he certainly had enough power to see it if it was as it is today. It was his intellect as a mathematician which enabled him to interpret his observations of Jupiter. Over a period of two months he made drawings of the positions of the planet and satellites. He worked out their positions at their orbits.

To me the fascination of this work lies in the way in which he went to the heart of every problem and, using logic and discussion arrived at amazing truths which revolutionised Astronomy forever.  
Chris Sheldon. Secretary; FAS.

**AUDIO CASSETTE REVIEW**  
**THE SKY AT NIGHT** by Patrick Moore  
QED Recording Services; price £5.95  
(Tel 01 446 7445)

For beginners wanting to learn constellations, this tape seems to be one good solution. QED Recording Services have tape Patrick Moore describing night viewing throughout the seasons. After an introduction which ensures observers can distinguish planets, generally tackle the exercise sensibly, remainder of the 60 minute tape is divided into seasons. This reviewer was without a S Walkman and so did not use the tape intended, ie out in the dark, under a clear sky and a bit at a time throughout the year. Instead she listened on the car stereo, having already been disqualified as a beginner. However condensing one year's observing into one hour listening produced a favourable impression.

The observer begins from a constellation each time; the Plough and winter, Orion. From these, using appropriate stars to draw imaginary lines in the sky, all major constellations are, one by one, located.

This does involve having a good memory when it comes to learning the stars by proper names. After that the procedure is simple.

At £5.95 (plus postage if mailed), seems a good item to purchase either by solo librarians to lend out to their beginners, or individuals to purchase for themselves. available in the shops or from "Earth and Sky" Rosemary Naylor; Editor FAS