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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 Coiswolds 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 commensorative 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 other areas of the universe beyond. On regarding an Open Week as experienced by the regular public properties of the public of the public properties of the public properties of the universe beyond. This can be a money spinner too so it is time to start making detailed plants 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 of 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 overwhended by choices cause by the amazing variety of equipment and fiftins 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 contend with even more, particularly the dreaded low intensity reciprocity failure, sky for and 'seeing' and

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

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

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 fl5 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 you 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.

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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The following dates are confirmed for Federation meetings in 1990. These dates also appear on the 1990 yearplanner as issued by the appear on me 1990 yearplanner as issued by the British Astronomical Association and the Innior Astronomical Society in conjunction with Armagh Planetarium.

Saturday May 5: AGM and Convention in Coventry. Details in the next FAS Newsletter. Saturday July 14: Convention in Pontefract at

the headquarters of the West Yorkshire AS. Organisers WYAS and Paul Money for the FAS Second Cardiff

Saturday September 29: Saturday September 29: Second Cardiff Convention at University of Wales College. Cardiff. Oreaniser - Martin Chick. address as on Round Up.

Member societies will no doubt want to organise their own events for National Astronomy Week which takes place Saturday November 17 to Saturday November 24. (Details please to the Newsletter editor for inclusion in later issues)

Some member societies have their own big days in the next few weeks, as follows:-

LIVERPOOL AS: Public night sky observing sessions will take place in Croxteth Park, Liverpool during the evenings Friday to Sunday February 2-3-4. Just turn up during the

WORCESTER AS: A Convention will

take place at Worcester Technical College on Saturday April 7, 10am to 6pm. Speakers are Professor Stuart Malin, Neil Bone, Dr Alan Partridge ("Orreries"), Brian Manning ("Discovering Asteroids"), Dr Yvonne Elsworth ("The Sun"). Dr Mike Bithnell ("Cosmology") There will be trade stands, demonstrations and society exhibits. Tickets should be obtained in advance, price £2.50, from Mr A Wilkinson, 179 Henwick Road, St John's, WORCESTER (Tel: Worcs 425004)

RAYLEIGH AS (Essex): A one day SUNDAY convention will be held on May 6 (the day after the FAS AGM) when parking should be easy. Venue - Mill Hall, Rayleigh, where speakers will include Victor Clube ("Catastrophism"), Andrew Collins and Neil Bone. There will be trade stands too. For more details contact Ted Rodway, 30 Moorecroft Ave, Daws Heath, Thundersley, Benfleet, Essex SS7 2UH

SUBSCRIPTIONS / PUBLICATIONS These became due on September 1 1989 and should have been paid by now, but of course there are societies who will be late. This makes for difficulties in distributing newsletters, and even knowing how many newsletters to print. Please help demented editors etc by paying promptly. The FAS Handbook for 1990 will be available shortly and will be distributed only to those who are up to date with

membership. A reprint has been made of the excellent 56-page booklet: "Observational Astronomy - a plan for the beginner" by S J Lubbock. The price is £1.25 and you should speak to treasurer Ken Marcus about buying in bulk for your

A few astrocalendars are still available for 1990. Again, order from Ken Marcus. The price varies with quantity to cover postage.

SOCIETY NEWS

AYLESBURY AS A quiz between the Milton Keynes, Luton and Aylesbury societies was held in July at Aylesbury's observatory, followed by refreshments and the chance to chat. At Aylesbury's usual Friday night observing session attempts were made to find Uranus with the 6-inch refractor. An unusual double star was located with one of the components being a very green colour. After attempts to find this in the catalogues failed it was realised that it was a single star with Uranus close by. A re-felting a single star with triangs close by. A re-reining meeting was held in the summer when the observatory roof was replaced and redecoration started. A break-in in August resulted in the theft of the finder, a box of eyepieces, the eyepiece focussing assembly and the declination clutch. An attempt to take the 6-inch objective lens failed; society members themselves had been unable to remove it some weeks previous. In September, members visited the Museum of the History of Science in Oxford, where Mr Simcock, the librarian, showed them round.
The exhibits included the early history of photography, telescopes, astrolabes and celestial BASSETLAW AS Members of the society

took a nature walk in the summer along the Chesterfield Canal. This ended at a farm with a very welcome drink. On a long observing night in the summer, members aimed to observe as many planets as possible. The evening as many pianess as possible. The evening started with Venus low on the horizon. Mars proved more difficult and was lost in the haze and low cloud. Saturn with its wide open ring system, and Titan, were easy. Uranus and Neptune were found too, along with several nebulae, galaxies and meteors.

BRIDGEND AS The Perseid meteor shower failed to materialise due to bad weather. The last time Bridgend managed to observe this shower was back in 1985. To compensate. during the summer the group observed Neptune close to Saturn. Also observed was the eclipse of the star 28 Sag by Titan, and the total lunar BRIGHTON ASS Brighton AS has widened

its horizons and is now called Brighton Astronomical and Scientific Society. They now cover all aspects of science but retain a strong bias towards astronomy and observing.

CARDIFF AS Most people managed to miss the lunar eclipse due to very heavy rain throughout totality. One meeting was held at Techniquest, a hands-on science centre. One of Techniquest's most recent additions is an Astrolab Planetarium. Although the staff knew how to operate this they did not know enough astronomy to put on an adequate show for amateur astronomers. So Martin Chick spent the whole evening inside the Astrolab giving guided tours of the Universe. The Centre is well thought out and a lot of fun. The annual quiz proved entertaining with Norman Jenkins, the regular question master, adding his own

brand of confusion to the proceedings. COTSWOLDS AS Tim Bradbury spent ten days at Puimichel Observatory in Southern France over the winter where he had good views of the Horsehead Nebula and other spectacles. The society visited the Museum of the History of Science in Oxford as guests of Dr Allan Chapman who gave a very interesting tour of the optical section. One item was a real Herschel six-foot telescope discovered by Liverpool amateur being used as an umbrella stand. A trip into the basement showed

medical, radio and horological exhibits. ELY AS The autumn talks were from Paul Scott from the Mullard Radio Astronomy Observatory on observing the birth of a star. A

wide selection of videos on various topics were shown at the September meeting. Mike Goodall has joined the British Sundial Society as a founder member. This society was set up in May 1989 with members across the country cataloguing sundials.

cataloguning sunulais.

HAMPSHIRE AG A marathon planet spotting was held on May 4 when all eight planets were found on one night. The marathon was repeated on Saturday May 6 for those unable to get on the earlier night. An Open Week of eight open nights for the public raised '500 for the society's new "Support Building" fund. The group has outgrown the existing "Crush Wagon" Another open week is planned for early winter. Several members have given their Sundays over to maintenance work on the equipment at Clanfield. A trip to Ron Arbour's observatory AS OF HARINGEY A trust has been set up

to raise money for astronomical projects at Alexandra Palace, the ASH meeting place. Sir Francis Graham Smith has agreed to become patron of this trust. ASH put on an exhibition at Hawkstone Hall.

LIVERPOOL AS In the summer, members attended three summer fairs where telescones were used to view the sun using the projection method. Several members attended the FAS northern convention and through this have made contact with other societies with a view to exchanging visits. On July 3, eight members went to Pex Hill to observe the occultation by Titan using two 8-inch and two 6-inch scopes. after the occultation, several Messier objects were observed and an hour after the event, Titan and 28 Sag were easily observable as separate objects. Twelve members met at Pex Hill to observe the lunar eclipse, while two other groups went to the Midlands and Lincolnshire to observe the grazing occultation during the eclipse. In September, a group went to Carr House, where Jeremiah Horrocks made his observations of the transit of Venus, which he had predicted.

LUTON AND DISTRICT AS Dave White

gave a talk entitled "An Unusual Angle", which was a tongue-in-cheek look at astronomy. The highlight of this was the description of Ancient Greek philosophers who used to present their widely inaccurate cosmological theories in the form of an election. Society president, David Early, spoke of his interest in astronomy with a talk on "Forty Years through the Telescope". Dr Gillian Pearce spoke on the different lines of research being pursued on the Supernova in the LMC. In August the society held a barbecue and despite heavy air and light pollution from beefburgers erupting like novae, Saturn and several deep sky objects were observed. The society has now raised '2500 for their project to build an observatory to house the 15-inch Cassegrain telescope which belonged to the late Horace Dall. Planning permission is being sought to build the observatory in the ground of Puttridge College on the outskirts of Lutor It is hoped work will start early 1990. NELSON AS A talk and slide show was give in the summer holidays to a group of children on a play scheme. The theme of the talk w

in the Ashdown Forest. The group enjoy many nights of clear skies which provided go views of a comet, the Perseid meteors Messier objects. NORTH EAST LONDON AS At the Octo meeting, Bernard Beeston gave a talk at weather, which has such an influence

SPACE and was accompanied by slides of t

Solar System and of the Apollo moon landing

Seven members attended the summer astro-car

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 investigation into the use of astronomical images for advertising non-astronomical products. NORWICH AS The society has had

Another subject

actronomy

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 Brewery, an old Lincolnshire brewery which still uses traditional methods to brew fine beers. ORWELL AS One of the major fundraising 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 astrocamp 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 astromart where members of the SAGAS group could buy and sell their astronomical and photographic

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 equipment. The winner Colin Reeve used a 12-inch reflector at prime focus and also cantured the star 45 Capricorni just as it emerged from eclipse. A barbecue was held at High Ton Observatory in July with about 50 people attending making a profit of £30 for the society. Although some cloud intervened, most quests enjoyed views of the moon and Saturn through various instruments STEVENACE AND DISTRICT AS President

best photograph of the lunar actings. In all 4"

slides were entered taken with a wide range of

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 gving members chance to nurchase equipment and learn about telescope design. Star parties were held in the summer to coincide with the Perseid maximum. STOCKSRRIDGE AS Newcomers to the

FAS this society was formed after evening classes held at Stocksbridge College two years ago. The group meet fortnightly have quest sneakers 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 Indrell Bank 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

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 aurorae 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

WEST OF LONDON AS Robin Scarell

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 astromind took place in July and Ken Willoughby is the new champion and will represent WYAS in the Yorkshire Astromind 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 Please send your society name to Mr and Mrs Chick at 2 Magnolia Way Chandler's Reach Efail Isaf nr Pontynridd Mid Glamorgan CF38 ZNJ 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

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

Ensure that adequate insurance is available for public liability and enipment 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.

BOOK REVIEWS *******************************

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

MARS, THE NEXT STEP; by A E Smith

Published by Adam Hilger @ £12.50 in

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 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 steer Neville Kidger; 60 Denshaw Grove, Morley,



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

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 which 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 operatioonal 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 Dohert 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 Pan 2415 BW film with a "B" filter at 450 nm.

SIDEREUS NUNCIUS or The Sidereal Messenger, Galileo Galilei Translated with introduction, conclusion and notes by Albert van Heldon. ISBN Chicago Press.

University of 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 Heldon has translated the Latin text of Sidereus 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 abou getting his work accepted without landing himself in trouble. Throughout the book there are helpful footnotes and at the end conclusion which follows the book by discussing how it was received in the scientific religious and social circles. At that time al noblemen had their team of scientists and som of these received the work scathingly. I car understand why he did not write an updated an improved version as he had originally intended Now to turn to the heart of the book

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

problem and, using logic and discussion arriv which revolutionis at amazing truths 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 go solution. QED Recording Services have ta Patrick Moore describing night viewing thro the seasons. After an introduction wh ensures observers can distinguish planets, generally tackle the exercise sensibly, remainder of the 60 minute tape is divided seasons. This reviewer was without a S Walkman and so did not use the tape intended, ie out in the dark, under a clear and a bit at a time throughout the year. Inst she listened on the car stereo, having alre been disqualified as a beginner. Howe condensing one year's observing into one ho listening produced a favourable impression. begins from a observer constellation each time; the Plough and

winter, Orion. From these, using approp stars to draw imaginary lines in the sky, all major constellations are, one by one, loca

This does involve having a good men when it comes to learning the stars by proper names. After that the procedur

At £5.95 (plus postage if mailed). seems a good item to purchase either by so librarians to lend out to their beginners, o individuals to purchase for themselves. available in the shops or from "Earth and S