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Federation of Astronomical Societies

EDITORIAL

Cleaning out the loft some weeks ago, I turned up a batch of letters, written over a number of years to the Federation of Astronomical Societies. These were from members of the public wanting, by and large, to know if an astronomical group existed anywhere near them. These letters from all kinds of people, had been answered and filed. But files accumulate and I decided to throw them away, first counting their number as a matter of interest. I was amazed to find I had informed around 250 people of their nearest society, irrespective of whether that society was a member of the FAS. This job is now being performed by the current FAS secretary; Dave Powell.

But harking back to those 250 letters I wrote, many at the expense of the FAS where no fee had been offered, I wonder have our member societies benefitted by this behind the scenes secretarial activity?

Where are these enquiring persons now? Theoretically they should be reading this newsletter. Did they ever follow up the information given? Did they join their local society? Did they find what they were looking for? (Many do not as the fluid nature of society rolls testifies.) Did they, those who joined a non-FAS society, persuade their group that the FAS was a worthwhile parent body? Did they become valued members of their adopted society?

Did they? did they? did they? ... I should be saying to those of you to whom I am referring "Did you?" I would like some answers please, addressed to the editor of this newsletter. Or were those 250 letters all a waste of time and money, yours and mine? As they say; 'answers on a postcard please'

I await your response with bated breath. Will it be 250 postcards, or 150, or 50, or 5? Tell me, for the present secretary's sake, that it was all worth while.

OBSERVERS ALERT

Omicron Ceti, otherwise known as Mira the Wonderful, has been spotted brightening up to quite a marked degree. Variable star observers will already have been primed with comparison charts and so on. Middle of the road observers (if that is a safe place from which to observe) should get excited, get out the old planisphere to find Cetus, the Whale, and get out doors as quickly as possible to find this red giant star before the Whale gets engulfed in Spring twilight at dusk.

Mira is not usually a naked eye star, but now it is, so reference to a star map should be sufficient at least to find it so that you can say you saw it. Sounds like That Comet, doesn't it?

For armchair astronomers, I offer an alternative suggestion. In his delightful book 'The Stars', H A Rey has managed to represent the constellations looking truly like their names imply, by drawing in the joining lines in the best possible ways.

FEDERATION NEWS

CONGRATULATIONS to our President: Tony Balfour, who was awarded a C.B.E. in the New Year's Honours List. How did they find out what good work you were doing for the FAS, Tony?

CHANGE OF ADDRESS:
Bill O'Shaughnessy
14 New Way,
Woodbury Salterton,
Devon EX5 1PW

Bill circulates the Council newsletter, thus keeping Council members informed of each other's thoughts and activities between Council meetings.

He asks that if FAS members or societies have any matter they would like brought to the notice of the Council, please would they get in touch with him.

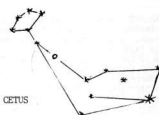
As we are fast approaching the time for the AGM this would be a good opportunity for members to influence the course of the Federation.

FUTURE DATES

1987 May 9: AGM and Convention
Venue: The Herbert Lecture Theatre, Coventry

1987 October 3: Convention at Herstonmooreux.
The Director, Professor Alex Boksenberg has confirmed that we may meet at the RGO yet again.

OBSERVERS ALERT continued from previous column..



Just look at Rey's version of Cetus. Lovely isn't he? There is one snag. The star appearing at the front of his jaw is the star Deneb Kaitos (beta Ceti) meaning the tail of the whale. We find similar names elsewhere: Deneb, the swan's tail and Denebola, the lion's tail.

Perhaps readers would like to make a fresh attempt at depicting the whale from the same set of stars with the head and tail reversed and if possible with Mira as the eye. Just for fun, bring any worthwhile result to the May Convention in Coventry. Perhaps some reader might like to organise a 'Pin the tail on the whale' game to be played as we queue on the stairs for coffee?

ANNUAL GENERAL MEETING

The Federation's AGM takes place on Saturday May 9 at 11.30 am. Again we shall meet at the Herbert Lecture Theatre in Coventry. Officer's Reports will be circulated to member societies before that date, together with the Agenda which has still to be discussed.

Your Council will meet on March 14 to make the necessary preparations, including finding officers to stand for the year 1987/88.

As always, new blood would be welcome on the Council, so volunteers please get in touch with the FAS secretary, preferably before March 14.

Should any society wish to raise an issue at the AGM, please notify the secretary so that it can be placed on the Agenda.

The meeting continues into the afternoon with a programme still to be finalised. Coventry has a number of establishments where a meal can be bought. Parking is more difficult but a car park is signposted from just in front of the Herbert Lecture Theatre and Museum, which is in turn in the same part of Coventry as the Cathedral.

Members planning to attend for the first time can, if they request it, get a street plan from the treasurer at the time that they book places.

Please book in advance if at all possible. The treasurer, Ken Marcus has a long journey to make to Coventry and advance booking makes admittance easier. As usual, block bookings from a society may give the society a zero subscription for the following year. This requires at least 6 members to attend from that society.

Admittance costs £2.50 for members. Send this with names to the treasurer, plus a s.a.e. if an acknowledgement is required. Tickets are not issued.

The Convention is fairly informal, once the AGM is over. There will be time to chat and to look at exhibits and competition entries. There will also be trade stands in attendance.

So, please bring suitable entries for the competitions. Prizes are awarded for space art, photographs and transparencies. Depending on the number of entries, these will be judged in separate sections: colour prints, b/w prints, slides. It is your day here so please respond. The regulars keep coming so it must be good.

FAS ASTROCALENDARS

There are a few astrocalendars remaining and these can be bought from Ken Marcus, address in the heading. The price of 60p each includes the postage.

ety had several lectures. Paul Kennedy spoke on his recent visit to the Kennedy Space Centre in Florida. An article by Peter Edwards gives details on how to get the most out of an observing programme by observing the Moon. Gerald Rawlings' lecture also featured the Moon including TLPs and the origin of lunar craters. Astro-computing was a joint lecture/demonstration given by Trevor Hedditch and John Smith illustrating many of the computer programs available. The autumn season ended with a talk by Peter Hunt on that illusive object the Sun.

BIRMINGHAM AS: The society held its first star party at the TA Centre in October. The workshop and a lecture room were in use. From the yard there is a good all round horizon with the buildings hiding most of the street lighting. Several members brought their telescopes and binoculars and good views of the Moon, Jupiter and Mars were obtained. The centre has a non-profitmaking bar and lounge which was used for a drink and chat during the evening. The newsletter included an excellent series of original "at the eyepiece" drawings of Saturn by Peter Grego made with the aid of a variety of telescopes from 1981-86. They illustrate the ever-widening rings due to the increasing tilt of the planet.

BRADFORD AS: The society has just completed a 6 inch reflector and this is used at observing sessions. Neville Kidger will be giving a 24 hour lecture on 30 January with half the profits going to Pennine Radio's Easter Egg Appeal - is this a world record???

(I hear as this goes to press that Neville completed 28 hours non-stop before being persuaded to stop talking on his favourite topic - spaceflight.)

BRAINTREE, HALSTEAD AND DISTRICT AS: Peter Saunders' talk about Radio Astronomy included details of his own radio telescope making efforts and some of the results he is getting from it. The society held a sponsored cricket match which was a great success and enjoyed by all participants. Members of the society enjoyed the FAS day at Herstmonceux. The society observatory fund stands at £400.

BRIDGEND AS: This society holds regular observing nights at a member's observatory in St Brides. In October a member's night was held with opportunities for all members of the society to participate. The Apollo 16 Pilot Astronaut Major Charles Duke was due to visit Bridgend in October and give a talk and film at the Recreation Centre on his adventures as an astronaut. Several members of the society attended the Astronomical Convention at Bristol University, a meeting of the South West Astronomical Societies.

BRIGHTON AS: The summer lectures at the Friends Centre were successful with three of the lectures on the Brighton Festival theme "The Four Elements". The society also had an exhibition at the Sussex University Open Day. Ten members went by minibus for the weekend to the FAS Convention at the AAC. The trip included a visit to the Photography Museum at Bradford and Jodrell Bank. Several members attended the Astro Camp in Ashdown Forest, the weather was reasonable with observing possible most nights.

BRITISH AEROSPACE AS (BOLTON): The society had a night at Scout Lane to observe the total lunar eclipse. The skies were very clear and it turned out to be one of the better eclipses. Members brought their own equipment so there was a varied selection ranging from a pair of binoculars to a 6 inch telescope. Later the 5 inch was used to look at various objects including M31, M57 and Alibre in Cygnus. Dr Alan Chapman of the Centre for Medieval & Renaissance Studies at Oxford was due to give a lecture in December.

CARDIFF AS: The lunar eclipse was not visible in Cardiff, so three members set off in a car and drove east in the vain hope of clearing the cloud. After a trip of 100 miles they arrived in Worcester just ten minutes after they were clouded out, so the 200 mile trip resulted in nothing except a cup of coffee. The society is currently purchasing a 14 inch Dobsonian as a portable instrument for use at observing sessions. The annual quiz was held in December with the usual entertainment provided by the question master.

COTSWOLD AS: The society put on an exhibition at the Astro Convention at Bristol. The main event of 1987 will be the unveiling of John Fletcher's 14 inch telescope at Mount Tuffley in Gloucester. The Photographic Star Atlas project is well under way with at least 32 of the 55 constellations already covered. A group from Worcester visited the three Cotswold AS observatories in the autumn and Cotswold members will return the visits by giving talks to the Worcester society.



Photograph of M27; the Dumb-bell Nebula taken last year by Bernard Abrams, Cotswold AS. Details: 10 inch F/5 reflector, 10 mins on Tri-X.

CRAWLEY AS: The society president, Nigel Calder, visited the society to talk about his new book. Alan Drummond visited Tenerife and La Palma for an astronomical vacation. A 12 inch reflector was donated by Mr Barnes of Furness Green as a result of NAW. Mr Barnes will visit the society to tell them the history and construction of the telescope. Two members visited the AAC and the Astro Camp.

CRAYFORD MANOR HOUSE AS: CMHAS has just celebrated its Silver Jubilee with a dinner, the guests were Professor Stuart Malin, Gordon Taylor and Dr Bernard Yallop. Many past members also attended. The 24 inch telescope is in operation again after its summer maintenance. Terry Goss has constructed a 14 inch Dobsonian and John Wall is in the process of completing the 32 inch. Variable star observing continues to be a major activity of the society. Photo-electric photometry (PEP) is expanding rapidly with Jack Ellis being the most prolific amateur photometrist in the UK. Other members are also contributing to the project. Gerry Pigott is radio meteor observing at MWZ. Visits included an afternoon with Cmr Hadfield and the Mullard Space Laboratory. The society also runs evening classes which are well attended.

DERWENTSIDE AS: A public astronomy evening was held in December but the weather was bad for the whole week and only a limited amount of observing was possible. Spoof played his trumpet card and the day after they finished the skies were beautiful. The slide shows went down well and the visitors enjoyed themselves. Several members attended a lecture by Heather Couper at Newcastle University. The design of telescope is finalised and several members are working on various components. A night was planned at the secretary's house in December. Members attended the New AS Star Party in November.

GUILDFORD AS: Plans for a society trip March to Paris and the observatories Meudon and Paris are well under way. Members attended the FAS day at Herstmonceux. A dozen members visited Oxford field's new astronomical observatory housed in new purpose built house which includes spectrophotometer and radio monitoring equipment.

HAMPSHIRE A GROUP: At the end of October the Clanfield Observatory was opened to public. The junior section of HAG meet a month and they have 25 members. Guy Hurst gave a talk in September on observations.

HUDDERSFIELD AS AND PHILOSOPHICAL SOCIETY: The society runs evening classes as part of its programme and has gained 12 new members. A sponsored meteor/satellite watch raised £15 for the society. The lunar eclipse was well attended including two members of the local police. Two public observing nights had clear skies but were poorly attended which meant that those who did turn up were able to have a look at some of the objects. A Phillips mini-planetary dome has been installed in the clubroom.

MID-SUSSEX AS: December's meeting was UFOs. Talks due in the new year include Observational Techniques and Photographic Computerised Models of the Solar System. The Universe. Many meetings are practised with the meetings taking place at the observatory.

NORTH ANSTON SPACE AND ASTRONOMY CLUB: This is a new astronomical group based in North Anston. Members are keen to contact other amateur astronomers. Their secretary is Mr W R Chadburn, 14 Oakdale Road, North Anston, Sheffield, S31 7EY. They publish a monthly newsletter and would like to include observations not only from their own members, but from corresponding areas around the country and even world. Mr Chadburn says he has written to "Astonomy" magazine hoping to contact other observers who wish to exchange notes.

NORTH EAST LONDON AS: John Mason gave a lecture on the work of the British First Survey and illustrated the talk with slides including observing equipment, meteorographs, meteorites and the meteor crater in Arizona. Dr David Whitehouse gave a talk called "Spacewards" illustrated with a large number of slides and giving details of the success and failure of craft such as Ariane and the Shuttle. Warstand House where the society holds its meetings, celebrated its 40th anniversary in September with an exhibition and Andrew Lawrence on a display for the society.

NORWICH AS: The clubroom has been coming along with their 30 inch telescope. They have impressed outsiders and recent contributions of equipment such as £80,000 worth of surplus radio apparatus from AMOCO including transmitters, receivers and 10ft dish aerials to be converted into radio telescope. The society would like to hear from any other people with experience of radio astronomy projects. They have also acquired an almost complete 12 inch Cassegrain telescope. Three Jupiter evenings have been held. These included displays, slide shows, and views of Jupiter.

juniors 50p) for the evening which included light refractions.

NOTTINGHAM AS: The observatory is near completion. Mr B Griffin has donated the money for a 24 inch mirror which has been purchased for £400. The society celebrated its 40th anniversary in 1986 with an illustrated talk given by a past president, Mr A Heath, on the history of the society. The NAS had a display at the Nottingham Flower Show. A year ago the society's 8.5 inch telescope was vandalised but a new mirror has now been obtained which needs refiguring. The telescope probably will be mounted permanently at the observatory site alongside the 24 inch.

ORWELL AS: The annual fund raising event took place in September. The observatory was open for four nights and the weather was near perfect - total raised £70. 24 members went to the FAS day at Herstmonceux. The weather was good for the lunar eclipse and the magazine included a series of photographs. Mr E Collinson, one of the society's senior members, has been awarded the BAA Stephenson Award for "a significant contribution to observational astronomy".

SAGAS: The summer astro-camp was better than ever, the Astro content was good with the Perseids putting on quite a show. Greg Stoye-Ramsay turned up with two 14 inch Hologoscoptes. There were many new faces with people from the South East, Milton Keynes and even Edinburgh. By next year the swimming pool & shower block should be restored. The fourth winter astro-camp was planned for early January 1987. The SAGAS Alert Network exists but lies dormant for want of information. Guildford were represented for the first time at the October SAGAS meeting. Mid-Kent College was vandalised in August and the Mid-Kent AS's. BBC Micro, disc drives, hardware, software, small telescopes, eyepieces, video, tapes, toolkit, cricket equipment, cases etc were stolen.

SALFORD AS: The society has grown by 20 members thanks to their exhibits at last year's Salford Show. Christmas was well celebrated firstly with a lecture by Dr Allan Chapman on Tycho Brahe and secondly with a social at Hope Hospital Staff Restaurant. Plans are afoot for a visit to the Mullard Space Science Laboratory, University College London, with a further half day visit to Newchapel Observatory, Stoke-on-Trent.

STOKE-ON-TRENT AS: Stoke have just restarted producing newsletters and include some things to do on a cloudy night, eg check equipment, write up log-book, plan future observations, investigate alternative sites. Finally, if you have done all that, and darned your astro-socks, etc, and the sky still isn't clear, you could join the Society and become an armchair astronomer. The weather for the lunar eclipse was good and several members took photographs. They have started a dark site survey of places open to the public, not on private property and away from lights, details appear in their newsletter as these sites are found.

SWHAS: Several talks were heard in the autumn and an enthusiastic observing programme was also planned. The talks included an illustrated lecture on Uranus by M Newman, C Reeve gave one on "A Layman's Difficulties with the Concept of the Big Bang", Professor Stuart Malin spoke on "Distances to the Stars", and the final talk of the year was from Dr H King and F Phillips on "The Star of Bethlehem".

WEST MIDLANDS AS: A Loud's 10 inch telescope is now fully set up and producing good results. Drawings of Jupiter through the telescope are reproduced in the newsletter. A fireball was seen over Birmingham on 23 September so Alan Wells had to explain on the local radio station what fireballs

A barbeque/meteor watch was planned for the Taurids.

WEST OF LONDON AS: A quiz is planned for January between WOLAS and SW HERTS AS. In February Dr John Mason is giving a lecture on volcanoes in the solar system and there is a trip to Hatfield Polytechnic Astronomy Dept.

WORCESTER AS: In September 15 members went on a trip to Jodrell Bank. The society has had many meetings with some visiting lecturers. Paul Money gave a talk on Saturn, Mike Maunders spoke on Astro-photography, Chris Sheldon gave an illustrated talk on her trip to La Palma last April, summarising the history of Greenwich, Herstmonceux, the telescopes on La Palma with many slides of the Islands scenery. At the AGM the year of the society was summarised.

We must thank the many societies for sending their newsletters - more than the last round-up. Please keep them coming. Newsletters for inclusion in the next round-up by THE MIDDLE OF MAY please.

Martin and Pam Chick

Societies should send their news and magazines to Mr & Mrs Chick at 25, Calderton Road, Gosport, Hants. Nr Pontypriid, Mid Glamorgan CF38 2LL for inclusion in the next ROUND UP.

Societies with announcements to make through the SOCIETIES NOTICE BOARD should write to the Editor.

SOCIETIES NOTICE BOARD

GUILDFORD Astronomical Society are organising a Saturday Convention on June 13 to which everyone will be welcome. It will be held at the Guildford College of Technology where there is parking for 800 cars. Speakers will include Professor Stuart Main with a talk on the instruments at the Greenwich Observatory. There will be various diversions and trade stands.

Tickets can be obtained from Philip Beattall, 6 Belmont Ave., Guildford, Surrey GU2 6UF. They cost £1.50 for advanced bookings and £2.00 at the door. Lunch must be booked in advance. Please enclose s.a.e. NORTH ANSTON Space and Astronomy Club want to correspond with other observers. See Round Up for their address.

HEAUFORD Astronomical Society has published an 84-page book called "Optical Telescopes" by one of their members, Harry Everett. It deals with telescope mounts, setting circles, light paths through the optics, collimation, the different types of instrument, eyepieces and micrometers.

It has a soft cover and costs £2.80 to include postage. Cheques payable to the Bradford AS should be sent to Brian Jones, 17 Havelock Street, Thornton, Bradford BD13 3HA if you would like a copy.

ASSOCIATION FOR ASTRONOMY EDUCATION was founded in 1980 to promote the teaching of Astronomy at all levels in our educational system.

Membership is open to anyone who is interested in the promotion of astronomy education. Teaching establishments which have an interest in Astronomy (schools, colleges, polytechnics, universities, planetaria, museums) are eligible to affiliate to the Association.

For more information write to the Editor of the AAE, sending a largish stamped addressed envelope to Eric Zucker, 35 Gundry Road, LEWES, East Sussex BN7 1PT

by Mark Harlow, Orwell AS

Part 2: The Design of the Schmidt Camera

The last issue of this newsletter presented a short biography of Bernhard Schmidt, the man who invented the Schmidt camera; but what is so special about this type of telescope? Probably it is best to start by describing the limitations of conventional telescopes to see why there was a need for a new design.

Basically there are two types of optical telescope, the refractor and the reflector. The refractor, in its simplest form, was invented around 1608 in Holland but was really developed as an astronomical tool by Galileo beginning in 1609. The early refractors had a single lens to form the image, which was examined by a simple eyepiece. There were two main disadvantages with this design, firstly the glass of the lens focussed light of different colours at different distances from it, giving indistinct, coloured images - the effect known as chromatic aberration. The second problem was spherical aberration - rays of light which pass through the edge and the centre of the lens come to a different focus. Efforts to overcome spherical aberration went to extreme lengths, literally! By making the focal length very long, spherical aberration becomes very small: in the mid-1600s telescopes 100ft long were sometimes used.

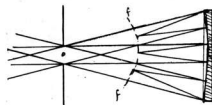
This desperate situation was remedied by John Dollond in about 1757 who realised that by making the main lens in two parts of different types of glass it would be possible to almost cancel out both chromatic and spherical aberrations, such lenses being achromatic. As a result of this advance, refracting telescopes could be made with much larger lenses but with much shorter focal lengths. The state of the art was reached in the late 1800s with the completion of the 40 inch telescope at Yerkes observatory near Chicago, which is still the world's largest. This upper limit is imposed on telescope makers because the lens becomes very thick above 40 inches diameter and absorbs a lot of light. It is also extremely heavy and sags under its own weight, distorting the images.

Turning now to the reflector, which was invented around 1660 by Isaac Newton, one immediate advantage is the absence of chromatic aberration; all colours of light are reflected to the same extent. However, spherical aberration remains unless the spherical mirror is figured, that is, has its shape changed slightly, to a parabolic curve. This, however, is not an ideal solution because although spherical aberration is eliminated, another type is introduced, called comatic aberration or coma. If a mirror is parabolic, parallel rays of light hitting the edge or centre are focussed at the same point. However, if parallel rays come in at an angle, those from the edge and the centre are focussed at different points so that the image of a star is not a point but is fan- or comet-shaped, which gives this type of aberration its name. As the angle of the incoming light increases the distortion becomes worse, so that the area of sky in sharp focus is very limited.

Bernhard Schmidt knew of all these limitations of existing telescopes and wanted to design a new type which would have a very large field of view and yet be free of the major aberrations and have a large diameter compared to focal length - that is, a high photographic speed. His design incorporates elements from both refractors and reflectors but also has completely new features.

....continued over

Schmidt realised the new design would have to have a mirror to eliminate chromatic aberration and that it would have to be spherical to eliminate coma. This was a good start, no colour errors or coma, but of course a great deal of spherical aberration. Remembering the trick used by the 17th century astronomers of using a very small aperture, one possibility was to use a small aperture stop some distance in front of the large spherical mirror. This is illustrated below and shows that a large field of view is allowed, in principle, on a curved focal surface. If the diameter of the stop is less than $1/10$ the focal length, spherical aberration will be small.



One way to overcome spherical aberration - a small aperture stop in front of the large mirror.

OK, so now we have no spherical, chromatic or comatic aberrations, but only a small aperture. Schmidt's stroke of genius was to make the aperture very much larger but to put in it a weak lens with a special curve on it. Weak in this sense has a special meaning, in that light passing through it is only slightly affected by it. This weak lens or corrector plate has some interesting properties. Firstly, because the curves on it are very shallow, light of different colours is affected essentially the same, that is, introducing the corrector does not introduce chromatic aberration; it's just like looking through a window. Secondly, by putting a special curve on to its surface it is possible to cancel out the spherical aberration of the mirror.

So now we have no spherical, chromatic or comatic aberration, but have gained a large diameter or aperture giving bright images of stars, nebulae, galaxies, etc. A third and important advantage of the weak corrector is that light passing through it at large angles is effectively essentially the same as light going straight through, so that the camera has a large field of view. For this reason the mirror is always larger than the corrector; the 48 inch camera of Mount Palomar has a 48 inch corrector but a 72 inch mirror, and can photograph an area of the sky with a diameter about 12 times the diameter of the moon, about 6 degrees.

The diagram below shows the basic design of the Schmidt seen in cross-section. Light enters from the left and passes through the corrector. It can be seen from its shape that light passing through the edge diverges whereas light passing through the central region converges - this exactly cancels the effect of spherical aberration of the mirror. Because of the symmetry of the system, illustrated in the previous diagram, the focal surface is curved towards the mirror so that the film has to be sprung-loaded to conform to this curve. Although this sounds rather difficult it only becomes a problem with short focal lengths. The curves on the corrector have been grossly exaggerated in the diagram - in my camera which has a 6 inch corrector the maximum deviation from flat is only .004 millimeters on each side; it just looks like a flat, clear disc of glass!



Schmidt's solution - light passes through a corrector plate before it gets to the large mirror.

THE HORSEHEAD NEBULA:
Framed photographs from an original negative by David Malin; super-size 40cmx50cm in colour from EARTH AND SKY @ £19.50

Order your boxed copy now for purchase at the Coventry meeting of May 9 or at the BAA Winchester meeting March 28, or at the BAA Exhibition Meeting of May 16, or at the AAC meeting of April 18 where David Malin, over from Australia, will address the Easter Star Party, or at the Guildford Convention of June 13.

Sorry they are too large to post safely. However, mail order lists will be sent in exchange for two first class stamps. EARTH AND SKY, 21a West End, HERDEN BRIDGE, West Yorkshire HX7 8UQ

DUNDEE WEEKEND - SEPTEMBER 1987

Dr Fiona Vincent is organising a second weekend course at the Mills Observatory to which all readers are welcome to join. It will cost about £46.50 but a booking form should first be obtained from Christopher Dingwall, Dundee Astronomy Course, c/o McManus Galleries, Albert Square, Dundee, DD1 1DA.

Dates: September 25-27
Theme: "Images of the Sky"
Accommodation with full board will be at Dundee's Chalmers Hall. Closing date for booking is July 31, but as last year's first ever Scottish residential astronomy course was such a success, places may well all be taken before that date, so book early.

Speakers will include someone from the UK Schmidt Telescope Unit, plus Dr Alastair Simons, well known for his fantastic photographs of the aurora. Other speakers will discuss techniques to help the amateur draw or photograph the night sky. There will be sessions for members' contributions, together with a choice of excursions. There may even be a chance to observe!

BOOK REVIEWS

EXPLORING THE NIGHT SKY WITH BINOCULARS
by Patrick Moore
Cambridge University Press
Hardback: price £11.95 : 203 pages

I found this book very good indeed. Well written in the author's customary easy to read, matter of fact style.

Starting with a look round the sky there follows a chapter on "Binoculars of Many Kinds". The reader will find some useful tips here on choosing the best kind.

Chapters follow on double and variable stars, complete with charts; and clusters, nebulae and galaxies.

We then have a description of each constellation with attention paid to objects suitable for binoculars.

Eclipses of the Sun and Moon are described, and much attention is given to what to see on the Moon night by night.

The author continues with a look at the planets, comets and meteors.

I think the book will be used more for reference than in the field, and I would have liked to see the reader referred to an atlas, such as Norton's, but having said that, it will show the reader large telescopes are not always needed and that useful work can be done with very modest equipment. Anyone reading this book should be inspired to get out of the chair and see the beauty of the night sky.

Dave Powell

BOOK REVIEWS

COSMIC IMPACT
by John K Davies
Fourth Estate, London
Hardback: price £9.95: 197 pages

Those superb photographs returned by the Voyagers from the outer reaches of the Solar System have shown us that wherever there is a solid surface there will be found a fossil record of that body's impact history. Nearer home, Mercury, Moon and Mars show their share of cosmic impacts. Many a good sci-fi story has featured some natural cosmic body on collision course with Earth or with space travellers. But is science fiction the only place for catastrophic events?

Dr John Davies works at the University of Birmingham in the Dept. of Space Research. Using information returned from the Infrared Astronomical Satellite (IRAS) he has located asteroids in Earth-crossing orbits and has discovered 6 comets, one only a little over 3 million miles from Earth.

Of course we know that Earth has been bombarded in the past, and not always in the distant past. The opening chapters describe the nature of the Tunguska event, the Barwell (Leicestershire) event, and others which happened within living memory. Evidence for large meteorite falls and even asteroid or comet impacts is uncovered. The well-known Barringer Meteor Crater was not a unique event.

BOOK REVIEWS

Have violent impacts altered the evolution of the Earth's crust? Was an impact responsible for the extinction of the dinosaurs? Is there evidence that collisions occur in cycles? What could we do to avert a collision if an asteroid were to be found heading this way? These are all fair topics for serious discussion and Davies gives an honest appraisal of the various theories which are popular at the moment. It is good reading, and the history is filled in too.

The book finishes with a table of asteroids in Earth-crossing orbits, together with a listing of the many impact craters on the Earth, oddly not including the Barringer Crater. There is a bibliography and an index. I would recommend this book both as exciting reading and as a good reference book.

Rosemary Naylor

Articles for the next issue of this newsletter should be sent to the Editor by the end of May. Photographs, preferably in black and white with plenty of contrast are particularly welcome.

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