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issue number 17

Federation of Astronomical Societies

FEDERATION NEWS
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The Annual General Meeting and Convention for 1989 will take place in Coventry on Saturday May 6. Please make a note of the date on your society programmes.

CATALOGUE OF VIDEOS: The Association for Astronomy Education has produced a catalogue of videos. The FAS has purchased a quantity and these have been circulated to societies. Should anyone want further copies these can be purchased from Ken Marcus at a price of £1.50 each.

SOCIETY NEWS ROUND-UP
****

by Pam and Martin Chick

Thanks for all the newsletters and articles. This time we have had a few from societies which have written in for the first time. If your society does not produce a newsletter then send a short article on your society's activities.

AYLESBURY: The society has been given a 16-inch mirror and flat and is hoping to make a portable Dobsonian. The August meeting was about Mars with talks by members on its orbit, distance from the Earth, observing the planet and missions to Mars. In July Pierre Girard from Milton Keynes spoke on double stars, giving the history of double star observing and details of how he built his own micrometer.

BEDFORD AS: The society is holding a photographic competition, and to give everyone a chance, the rules do not allow the use of any driven devices. In September, the society visited the 19th Century Samuel Whitbread Observatory at Cardington. Another visit was to the County Records Office to study documents on Bedford's rich astronomical past. One of Bedford's most famous astronomers was Admiral William Smyth, author of the Bedford Catalogue and father of Charles Piazzi Smyth, Astronomer Royal for Scotland. Members hope to organise a weekend visit to Birr Castle in Ireland.

BOSTON ASTRONOMERS: The second Lincolnshire and South Humberside Astroquiz was held in June at the Beacon Hill Observatory, Cleethorpes. Boston came second with Lincoln winning. Twenty-five members paid a visit to Jodrell Bank in July. David Stannard and Ian Morrison of Jodrell Bank gave them a guided tour and two excellent lectures on radio astronomy and the role of Jodrell Bank. Three members attended the FAS convention at Herstmonceux.

BRADFORD AS: The annual quiz against West Yorkshire AS was held in June with the first leg at the WYAS Observatory in Pontefract and the second in Bradford; West Yorkshire being eventual winners. A treasure hunt and a sponsored walk raised £150 for society funds. Several "Natter Nights" are planned in addition to normal meetings; the first in July being a success.

BRIGHTON AS: The end of session social event in March was a Caribbean evening with fancy dress, Latin American dancing and Caribbean food. In July the society's 21st birthday was celebrated at the Univesity of Sussex with a convention featuring lectures, exhibitions, refreshments and tradestands. A 'Spot the Comet' competition challenged contestants to pin on a star map the location of Halley's Comet on the day the society was founded in 1967. A celebration dinner in a hotel in Hove ended a successful day. In July, ten members went for a weekend in Edinburgh. After an eleven hour drive they pitched tents in the rain and the following day visited the Royal Observatory, Blackford Hill in the rain. Here they were shown the Schmidt plate library. At the City Observatory they inspected the 6-inch Cook refractor. Sunday night, after a day sightseeing was memorable for the worst July gales for 50 years which added to their camping problems. Back in Brighton Sunday night completed their 1130 mile weekend away.

BRITISH AEROSPACE (LOSTOCK) AS: The year's events have included a fibreglassing demonstration by Trevor Ward, a trip to Oxford, a computer demonstration by Ian Parr and a visit to Condor Brow Observatory near Lancaster. A family day and a Christmas lecture by Dr Allan Chapman on "The Discovery of Neptune" helped to publicise the club. The introduction of a Messier League has encouraged people to observe.

BRITISH METEOR SOCIETY: The journal of this society is usually packed with news and views about meteors and observations. Observers' reports are always welcomed by the society and anyone interested in this topic would be well advised to join the group.

COTSWOLDS AS: John Fletcher has been experimenting with T-Max 3200 film and Bernard Abrams has been testing Lumicor filters in an attempt to remove the effects of street lighting from his photographs. A star party was held at Mount Tuffley, (John Fletcher's home) in September. Regular correspondence is received from societies in Victoria, Canada and Chicago.

COVENTRY & WARWICKSHIRE AS: The magazine includes an excellent drawing of Mars by Rob Moseley. It was made at the 18-inch reflector at Condor Brow Observatory near Lancaster. Red, blue and yellow filters were employed to make a total of 48 intensity estimates. The telescope is superbly mounted and fully driven. The 18-inch mirror is the largest one made by George With in the 1870's. It belonged to Nathaniel Green and later to Rev T E R Phillips, the great planetary observer. Gordon Coultrup held a star party for members in October. The magazine shows other observations and drawings by members including some of Capuaus on the Moon, sunspots and Jupiter drawings.

ELY AS: The society has struggled to keep together since the loss of their observatory site. They now have a new site at Coveny with foundations dug and grass laid. Plans are to move in the 14.5-inch reflector in its original housing. This will be followed by two rotating square observatory buildings to hold a 14.5-inch and a 10-inch reflector and a large meeting room for members.

HAMPSHIRE AG: Members have worked hard during the summer to provide electricity and water to the remote observatory site at Clanfield. Essential maintainance work has been carried out on the two domes which house a 16-inch reflector and a 5-inch Cook refractor. The group's original observatory at Fort Nelson suffered from increasing light pollution. A public open week was held in September to coincide with the perihelic opposition of Mars. With publicity in the local press this was well attended with four clear nights for viewing. This public session brought in much needed funds and more members. The group meet every Friday evening at the observatory and have monthly meetings with a guest speaker at Highbury College of technology, Portsmouth.

AS OF HARINGEY: A few members enjoyed a visit to Orwell AS for that society's 21st birthday celebrations. The Autumn session consists of lectures by Greg Smye-Rumsby and Owen Brazell at their new home at Alexandra Palace. Christmas will be celebrated with a party.

LEEDS AS: The society has made various visits, including to the British Astronomical Association's meetings in Swansea and London, the Nuffield Radio Astronomy Laboratory, Jodrell Bank, and the The Old Royal Observatory and Maritime Museum at Greenwich. Guest speakers at the society have come from York, Dundee and Salford. Computer evenings have been dropped however, because most members did not want them.

LIVERPOOL AS: The 107th session began with 106 members who will enjoy a full programme of lectures. There will be a public weekend over three nights in Jan/Feb at Croxteth Park. The last such attracted 700 members of the public. A public meeting was held at the University of Liverpool to hear David

Robin Scagell; West Of London AS

At the last AGM I commented that within 10 years all societies would keep in touch with each other by electronic mail. The discussion arose from complaints that some societies had not received details of the meeting until shortly beforehand; but it is dificult to circulate news quickly to all member societies by post.

I do believe that electronic mail would be of great value to the amateur astronomy community, so this note is to explain a bit more about it, and how it can help FAS members.

WHAT IS E-MAIL?

Electronic mail is rather like a post office box system. Everyone in the system has their own box number, and someone wishing to send you a message pops it in your mailbox. Then when you next look in your mailbox, you collect the message. The mailboxes are actually held in a central computer, which you keep in touch with by telephone.

To do this, you need a computer with a word processing package and some extra equipment - and of course, to subscribe to the mail system. Once you have a computer with a word processing package you can convert all your messages and information into electronic signals. This is done by a 'modem' - short for "modulate/demodulate" - which turns your documents into standard electronic signals for transmission down a telephone line. The great thing is that although there is precious little standardisation in the computer world, so that my Amstrad uses quite different discs or programs from your BBC, there is a standard code for sending 'alphanumeric' characters, called ASCII. So whatever computer you have, you can communicate with others.

The e-mail system called Telecom Gold, run by British Telecom, is the major public service in the UK, and within it is a service called MicroLink, which has become the appropriate system for use with home computers. When you join it you get your own Telecom Gold mailbox. You can communicate with anybody else on Microlink, Telecom Gold, or any Dialcom system anywhere in the world.

ASTRONOMERS AND E-MAIL

Most importantly for amateur astronomers, The Astronomer magazine runs an e-mail circular service on Microlink. This is the quickest way of getting news of discoveries unless you subscribe to the IAU telegram service, which is very expensive. And indeed, the TA service includes additional information of interest to UK amateurs. It is of course much easier to relay positions of new comets by e-mail than by phone. There are approximately 100 TA e-circulars a year.

It is as cheap to put a message in 200 mailboxes as one, which is why the system is so suited to sending out information to societies. If every society had a member on Microlink, it would be a simple matter to send the latest information about meetings from the FAS to all member societies. And each society could inform the others in its area about its forthcoming special events, or any changes in programmes which might be of interest. It would be easy to send articles for society magazines from person to person.

Microlinkalso allows you to send and receive telexes from your computer, to send telemessages, receive a daily satellite weather map, and more.

WHAT ARE THE SNAGS?

The main drawback is cost. Even if you already have a word processor, the modem, interface (for connecting it to your computer) and software (to run the modem from your particular machine) can cost up to £250, though Microlink do special offers for some machines which cost abouthalf that. Microlink costs £5 a month, plus a charge of 3.5p a minute 'connect time' at off-peak rates. Then there is the cost of the phone calls (at the usual BT rates) and an additional packet-switching charge of 3p a minute which is payable if you are outside the London phone area. The TA e-mail circulars cost £20 a year. So even if you use the system sparingly you will run up bills of at least £100 a year running charges, plus the cost of the equipment.

But against this you have to consider the advantages of instant communication between societies and individuals. The more people are on the system, the more use it will be. By pooling society resources, the costs become more affordable. And to put things in perspective, once you are on the system, it costs rather less than a first class letter to send an average length message. Don't forget that your paper and astronomical societies depends on many costs being absorbed by members - their own telephone bills, car expenses and so on. E-mail should be seen as another of these, but one with its own unique advantages.

Another minor problem is that if people don't log on, they won't find their mail, so you can't guarantee that people will get your messages. But you can find out if an individual has read your message.

AN ALTERNATIVE - BULLETIN BOARDS

With a modem you can dial onto 'bulletin boards' or communicate with other modems without needing to join Microlink. The BAA may in the future run such a bulletin boasrd, on which you could leave messages about their meetings or section news, for example, and the FAS could do the same. Such boards require a computer, modem and phone line permanently connected up, but this may be a cheaper alternative to a full e-mail service.

The RGO currently has a modem which you can dial up. It will read out the latest and recent IAU Circulars, and you can consult the 'Floppy Almanac' of rising and setting times, star positions and so on, free of charge.

As I said at the AGM, I am sure that in the future e-mail will be a major means of communication between societies. If you want to find out more about the TA sercvice and Microlink, Guy Hurst will be happy to give you the gen. His address is 16 Westminster Close, Kempshott Rise, Basingstoke, Hants RG22 4PP

WANTED
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Telescope; 8-inch reflector on equatorial mount. Will pay £250 to £300. Please send details and your telephone number to:-
Martin Chick, 2 Magnolia Way, Chandlers Reach, Llantwit Fardre, Nr Pontypridd, CF38 2NJ

BOOK REVIEW
****
The Atmosphere of the Sun, by C J Durrant (IOP Publishing Ltd) 1988.
Hardback 168pp £23.50

"This book is an invaluable aid to postgraduates in astronomy and astrophysics. Both amateur and professional astronomers should find stimulating material in it." This is the comment made by the publishers on the back cover of this book, and it immediately sets the level of the intended readership. It is doubtful whether many members of astronomical societies or readers of the FAS newsletter will fall into this category, but doubtless there are some. This book should certainly appeal to them.

However, although this scholarly work in no way may be regarded as a "popular" exposition, it will be a useful addition to the libraries of those of our readers whose interests take them into areas where they can come to grips with the subject in a mathematical way. There is a considerable amount of mathematics in the book, and at a level which one would expect from a work at this standard, but it does not dominate the book. It is possible even without understanding the maths to appreciate much of the discussion and results.

The book is devoted to the physics of the solar atmosphere, that is, the photosphere, chromosphere and corona, but goes into some detail concerning what goes on in the interior, as it is here that the surface phenomena are generated. The various chapters form a logical sequence and following the first one on the physics of the interior we have (in order): the cool atmosphere (non-magnetic photosphere); the cold atmosphere (magnetic photosphere); the warm and hot atmospheres (chromosphere and corona); the evolving atmosphere (solar activity). Finally an appendix gives an introduction to the theory of plasmas - it is pointed out that the whole sun is a plasma.

An extended bibliography completes the work.

I found this a well-balanced and stimulating book. Some readers may find the price rather high for a work of 168 pages, but book prices no longer astonish me, and this is a work aimed at a rather restricted readership, a fact which always pushes up the price. For those who would like to "get their teeth" into the subject, I would certainly recommend it.

Eric Zucker Education Officer; FAS

observatory is on the roof of the City Museum and houses a 5-inch Cooke refractor and a computer. A radio telescope is under construction and active members observe meteors and deep space. Liverpool will be host for the BAA out-of-town meeting in September 1990.

NE LONDON AS: Speakers at the society have included John Fisher talking on "Encounters with Neptune" and John Stephens on "A Tour of the Nearest Stars".

NORWICH AS: The society organised a "Leisure Optics Exhibition" with the co-operation of other scientific societies and trade exhibitors. The exhibition included such topics as astronomy, microscopy, ornithology, geology and natural history. The Norwich Observatory was open for a special display of telescopes and mirror grinding.

ORWELL AS: The society held a 21st anniversary open day on Saturday July 16 which several other societies attended. Speakers included in the programme of varied events were Neil Bone - "Atmospheric Phenomena"; Andrew Prestwich - "Origin of Active Galactic Nuclei"; Rosemary Naylor - "Orion Nebula" followed by a final talk on the history of the Orwell Park observatory.

PLYMOUTH AS: The 24-inch telescope is progressing well with work being carried out on the mount. The 10-inch telescope is undergoing a major overhaul. Jason Semens won the first prize in a New Scientist competition . The first prize offered by this magazine includes a trip to America to the Jet Propulsion Laboratory in Pasadena for the Voyager 2 approach to Neptune in 1989.

SCOTTISH ASTRONOMERS GROUP: At the 1987 AGM Professor Longair spoke about the frontiers of present day astronomy. The meeting was held in the Royal Observatory, Edinburgh and many societies attended.

SOLENT AMATEUR ASTRONOMERS: The society is trying to obtain funding to restore the Itchen College Observatory in Southampton. This will then be open for the public to use. It is planned to install a fully equipped 16-inch Cassegraine telescope. The society's Toothill Observatory has now been in use for a year without mishap, (vandalism, etc). Recently 45 members visited Patrick Moore's home in Selsey. An active Mars observing programme was planned.

SAGAS: Greg Smye-Rumsby held a paper aeroplane competition. A tour was arranged around the RGO which included visiting the laser ranging satellite tracker and the equatorial group of telescopes. Other events organised included a sports day, a barbecue and a trip to Thorpe Park. Flamsteed's 342nd birthday was marked by a visit to Burstow Church where the rector, David Roderick showed them the tower, letters by Flamsteed, parish records, and the house built by Flamsteed when he was rector.

SW HERTS AS: The society has decided to widen the scope of taks. Professor J Fowler of the Grey Lanoratory, Mount Vernon Hospital gave a lecture on "Radiobiology in Cancer Research". Stuart Malin gave a talk covering the basic ideas on measuring time. After a major overhaul the 12-inch telescope is fully operational. 73 members and guests enjoyed a barbecue.

SWANSEA AS: Members recently held two successful open evenings at the observatory; about 400 people attending. The principal objects on view were Mars and Jupiter but binary stars, clusters and galaxies were also viewed. Telescopes in use were the society's 9-inch, a 10-inch Celestron, a 10-inch Fullerscope, smaller reflectors and refractors and binoculars. This brought new members to the society. More open evenings are planned together with bi-weekly observing sessions.

WEST OF LONDON AS: Dr David Stickland of the Rutherford Appleton Laboratory is to talk on "Some Stars I have known" and Le Forbes willtalk on "The Giant of Birr Castle. Several observing sessions are planned for the winter.

WEST MIDLANDS AA: The association was formed in 1978 and so was ten years old in April. This was celebrated in a meeting of short talks on different aspects of the solar system. Alan Wells spoke on the history of the association and his favourite topic - "Lunar Occultations" Malcolm Astley of Wolverhampton AS spoke on the way the sun and moon affected the Earth, particularly in relation to the Severn Bore.

WEST YORKSHIRE AS: The annual task of redecorating and renovating the building and instrumentation was completed recently. A book and white elephant stall were manned at the Carleton Community Centre Summer Fayre. Tours of the

day early. Two nights observing were enjoyed at the camp.

WOLVERHAMPTON AS: The society's fifteenth weekend course was held in March at Alston Hall near Preston, where they were welcomed back by Mrs Lightfoot, the Principal. Speakers on the course were Konrad Malin-Smith - "Astrophotography" and "Pulsars"; Dr Gillian Pearce of Oxford University - "Observations of the Sun" and "SN 1987A" and Dr Fiona Vincent - "Minor Planet Orbits" and "Astronomy and the Radio Amateur". David McAdam showed a video made by Robert McNaught at Siding Spring, Australia. Observational astronomy suffered for the usual reasons, cloud and full moon.

PS: Some of the information is a bit out of date this time as we 'lost' some of the newsletters when we moved house in June. Apologies to any society which was omited. We should be up to date from now on.

PLEASE CONTINUE TO SEND NEWS TO OUR NEW ADDRESS:

Pam and Martin Chick, 2 Magnolia Way, Chandlers Reach, Llantwit Fardre, Near Pontypridd, CF38 2NJ South Wales.

SPACEPRINTS COMPETITION
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WOULD YOU LIKE YOUR SOCIETY TO WIN A HANDSOME CASH PRIZE?

1st Prize £75
2nd Prize £50
3rd Prize £25

Societies are invited to submit a portfolio of work produced between October 1988 and May 1989. The following items are to be included.

1. PHOTOGRAPHY: (a) 4 slides and (b) 4 prints of astronomical objects taken either with or without using a telescope. These can be black and white or colour.

2. SKETCHES: sketches of four different astronomical objects to be made during observing sessions. They can be made:- (a) using naked eye (b) using binoculars (c) using a telescope.

3. ARTISTIC IMPRESSIONS: two items (model or picture) which MUST be based on fact.

The number of people in your society and the number of members who have contributed to the portfolio will be taken into consideration.

Assuming that there will be a high standard of entries, the best entries will be used by SPACEPRINTS in their 1990 calendar and there will be a payment to the contributor (not the society).

Portfolios must be received by the Federation either at, or before, the 1989 AGM at Coventry.

Mrs Christine Sheldon
FAS Secretary

COMPETITION WINNERS AT FAS MEETING
HERSTMONCEUX 1988 OCTOBER 8
****

The photographic competitions were judged by Ron Arbour of the BAA. Winners were:-
Black and white section - John Fletcher of Cotswolds AS for his negative print of M81 and M82 in Ursa Major. (His prize was a copy of 1989 Yearbook of Astronomy by Moore)
Slides section - John Fathera of Fitzharrys AS (Oxford) for his slide of M42 in Orion. (A book on the planets as prize)
No entries were put forward for the colour print section.

Martin Chick of the FAS judged the society magazine competition. Winners were:-
Cotswolds AS (Prize voucher donated by Ian Poyser)
Plymouth AS (Prize book donated by Earth and Sky)
Leeds AS (won a free subscription to FAS)
West Midlands AA (set of spaceflight cards donated by Norman Fisher Ltd)

The judge comments that magazines were judged on their content. He was looking for local society news, observing reports, current articles. Quality of reproduction was only a secondary consideration, it being considered that not all societies can afford high quality printing.

BOOK REVIEW
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The Peripatetic Astronomer: The Life of Charles Piazzi Smyth, by H A Brück and M T Brück (Adam Hilger, 1988)
Hardback 274pp £29.50

The authors, H A Brück, Astronomer Royal for Scotland for 20 years until 1975 and his wife, M A Brück, became interested in Charles Piazzi Smyth whilst at Edinburgh. The book covers aspects of the life and works of Piazzi Smyth, a remarkable man who left school at the age of 16 and was Astronomer Royal for Scotland by the age of 27, a post he held for 42 years.

Each chapter covers different phases of his life. Piazzi Smyth's enthusiasm for many different aspects of scientific research is felt from reading this book. Even in retirement he worked enthusiastically at pioneering spectroscopy and photographing clouds.

His interests included astronomy, surveying, meteorology, and pioneering photography, being one of the first people to take flash photographs outside a studio. He was an accomplished artist and traveller and an expert on the metrology of the pyramids. His obsession with pyramids and his interpretation of the measurements he took lead him to have many arguments with established scientific bodies and friends.

His work at the observatory was hampered by negotiations over who was to pay for any maintenance, provide new equipment and buildings, and even pay his salary.

Piazzi Smyth emphasized the need to have observatories away from city smog in clear air on high mountains. He chose Tenerife as the location for his mountain top observations. He campaigned continuously for funds to set up a mountain observatory, but they were not granted during his lifetime. He enjoyed a reputation around the world for his work, and visited many European observatories as a guest. Everywhere he went he observed astronomical objects or meteorological effects and generated enthusiasm in others to carry on the work. Even sailors on board ships took pride in making observations for him.

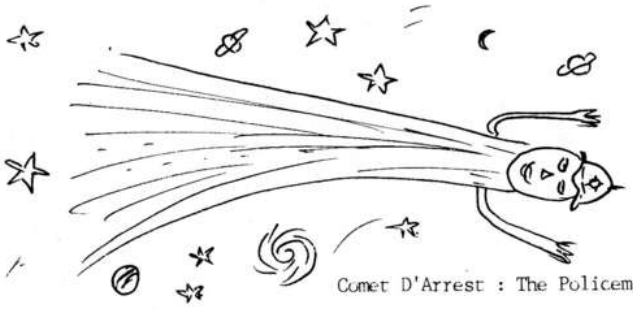
One aspect I would have like to have seen emphasized in more detail was the contribution made by his wife who assisted him during his travels even when she was very ill.

Throughout the book there is reference to many famous people of the nineteenth century, from all backgrounds, who were his friends and relations. I found the book very enjoyable to read and would recommend it to anyone interested in astronomy; though I would have some reservations about the price.

Pam Chick
Assistant News Editor

NOTICE

Mr M A Redshaw of Carr House, Carr House Lane, Bretherton, Nr Preston, Lancashire would like to hear from anyone with anything of interest relating to Jeremiah Horrocks. He is planning to build an exhibit in Carr House relating to this astronomer as part of the museum which now occupies the house. Your possible help would be appreciated.



Comet D'Arrest : The Policeman's Comet Just one of a series of comet cartoons by Alexander Vincent

IN THE SKY
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COMETS: SOME PERSONAL RECOLLECTIONS
****
Alex Vincent, Worthing Astronomical Society

Most comets are too faint to be seen with the naked eye, but many can be observed in small telescopes. I have seen seven comets, the first being Comet Kohoutek, which came to perihelion on 28th December 1973. Although it was predicted to reach magnitude -12, it hardly reached third magnitude. I only saw it once, in the western sunset sky on 5th January 1974, near Venus and Jupiter. It showed a faint tail. Comet Kohoutek will probably not be seen again for another 75,000 years.
The next comet that I observed was Comet Kobayashi-Berger-Milon, on 2nd August 1975. Some members of the Worthing Astronomical Society went to Greenwich for the day and we were told about the comet. In the evening I observed it in Ursa Major through 7 x 50 binoculars, noting that it had a faint tail.
I saw no other comets until 1983 when Comet IRAS-Araki-Alcock was visible during May of that year. It reached magnitude 1·5 and was the closest comet to Earth since Lexell's Comet of 1770. I saw IRAS-Araki-Alcock on 9th May in Ursa Minor and again on 11th May in Cancer. It appeared as a fuzzy blob, similar to cotton wool, and could be seen with the naked eye. This was the first comet that I photographed.
My next cometary observation was that of Halley's Comet, initially as a fuzzy blob on 9th November 1985. This was during National Astronomy Week (9th-16th Nov) which was organised for the public to observe the comet. In Worthing there were telescopes erected for public observation, and on one night over 200 people came to see Halley's Comet. I saw and photographed the comet on several occasions before its perihelion on 9th February 1986. On 19th January 1986 I saw the comet's tail.
After perihelion I got up on March mornings to photograph the comet, but the sky was either too cloudy or misty. My best view was on 25th April 1986 when it showed a tail. My last look came on 3rd May 1986 when, along with other members of the Worthing Astronomical Society, we saw Comet Halley as a fuzzy blur. More spectacular was a fireball of magnitude -7 which came from the direction of the comet and went towards Cassiopeia. After the event there was a train which lasted about 20 seconds. Could this fireball have been associated with Comet Halley?
The next comet I observed was Comet Sorrells on 24th June 1987, through a 3-inch refractor. It was very faint and tiny, but was easily picked up near the star Enif (Epsilon Pegasi). Though never brighter than 9th magnitude, I photographed it several times.
Comet Bradfield was next on my list. This was the 13th comet to be discovered by Bradfield, attaining 5th magnitude and becoming well placed for observers in the northern hemisphere. My best views were on the 22nd and 28th November 1987. It had a fan-shaped tail. I took several photographs of the comet and observed it moving from Aquila to Pegasus.
The latest comet that I have observed was Comet Lilley in Camelopardalis on 10th and 16th May 1988 when it was at 6th magnitude. On 10th May the sky was hazy and the comet was hard to observe, although 16th May was a clear night and I managed to get a good view. My last look was on 27th May 1988 through a Celestron 8 telescope. It was a great sight and I photographed it a few times. During this period the comet was circumpolar and visible all night.
I have photographed several other comets, and on 16th June 1987 I tried to photograph Comet Nishikawa Takamizawa-Tago, although twilight prevented me reaching its magnitude of 8·6. On 15th August 1987 I tried to photograph a number of comets, including Grigg-Skjellerup, Brooks 2 and Wild 3. However, these were below 12th magnitude and there was little hope of them appearing on my photographs.
I photographed the short period Comet Borrelly on 10th December 1987 using a clock drive. The comet was well placed and had a magnitude of 7·2. On 22nd January 1988 I photographed the short period Comet Kohoutek without knowing. At the time I was photographing the minor planet Vesta and happened to get Kohoutek as well! On 22nd May 1988 I took a few photographs of Comet Tempel 2, which was at magnitude 9·9.
There is certainly a lot of enjoyment in observing and photographing comets.

Comet D'Arrest is directing the traffic throughout the Universe. The speed limit is 186,000 miles per second.