FAS TREASURER:
Ken Marcus, 5 Cedars Gardens, Brighton, BN1 6YD.

SOCIETY SUBSCRIPTIONS TO THE FAS should now be in. Would the following societies kindly forward their due to the Treasurer asap.

Birmingham, Bolton, Daventry, Carmel College, Newark, Kings School, Gloucester, Morley College, Solent, Graydon Manor House, South 13, South West Herts, South Somerset, Stevenage, Cleveland, Sidmouth, Stoke-on-Trent, New Chapel, Guernsey, Steventon.

FAS HANDBOOK 1985/86
Each paid-up member society will be now have received a copy of the latest Handbook, with lists of societies, publications, speakers, visual aids, etc. Articles include astrophotography, meteor watching, the Scotch mount and Giotto. Extra copies can be obtained from Rosemary Naylor, price £2.50, plus 25p postage. Cheques payable to FAS.

ASTROCALENDARS 1985
This useful booklet published jointly by the Cardiff AS and FAS gives sky maps and notes for each month of 1986. It can be purchased in bulk from the Treasurer at 50p per copy to include postage. Cheques payable to FAS.

FAS SECRETARY:
Daw Powell, 1 Tal-y-bont Road, Ely, Cardiff, CF5 5EU.

ASTRONOMER'S CALENDAR
by Len Brundle, Mid-Sussex AS
The Royal Astronomer looked out, On the Winter Solstice, When the sky was clear and bright, From his window, gazed intently. He could see the stars, many stars, And the Moon was waning, When a bright light came to view, In brilliance steadily gaining.

"Hither Page, Come stand by me, See if ye't discerning, Yonder Planet, Which is that? Tell if ye'rt art learning." "Sir, 'tis mighty Jupiter, Above the City's Lights, Great Red Spot, Prochn'nt Cloud Belt Four Large Satellites." "Bring my Mirrors, Bring my Lenses, And my Prism serving, Thou and I shall spend this Night, Stargazing, viewing." Page and Royal, up they went, To the Topmost Storey, Out on to the Battlement, Where stood the Observer. "Sir, the Stars seem fainter now, And they're further dimming, Falls my eyes, I know not now, There's excessive illuminating." "Mark my Lenses, Stupid Page! Slew them in more surely, Thou shalt find the Stellar Rays, Magnified more purely." In his Master's 'scopes he screwed, The Eyepieces more tightly, Images became less blurred, Nebulæ shone brightly, Wherefore Amateurs and Pro's, Telescopes possessing, If you don't make them secure, Observing'll be distressing.

ANNUAL GENERAL MEETING AND CONVENTION
1986 May 3 - Saturday at the Herbert Lecture Theatre, Coventry.
FAS CONVENTION at the AMATEUR ASTRONOMY CENTRE
1986 July 12 - Saturday
The main theme of this convention will be to present the contribution made to the development of astronomy in the north of England; past, present and future. A curorous look around the region yields many such as Goodricks and Esplin, establishments such as Grubb Parsons and Jodrell Bank, and many other topics. Will readers please get in touch with Rosemary Naylor, organiser, with their ideas of what should be included.

HALLEY'S COMET INFORMATION PACK
Published by Inner London Education Authorised by: Leicester Branch, Production Division, Thackeray Road, London, SW6 1TB.
Price £5.50 (IEA affiliated organisations £3.50)

A COMET CALLED HALLEY
by Ian Ridpath and Terence Murtagh
Published by Cambridge University Press: 48pp: £2.95

HIS OBSERVER'S GUIDE TO HALLEY'S COMET by James Murnil
Published by George Philip: £2.95 (softback), 75pp

Reviewed by Brian Jones

Although a considerable number of books have appeared recently covering the forthcoming apparition of Halley's Comet, the Observer's Guide to Halley's Comet is probably one of the best around, bearing in mind that the vast majority of those who see the comet will do so through nothing more elaborate than a small telescope. This moderately priced book presents the reader with clear instructions on how to locate, observe and photograph the comet in the unaided eye. Suitable for beginners and for those without an obstrueed optical aid, coupled with this is a description of comets in general and a brief but adequate account of famous historical comets, including Halley's, all combined to make this a very worthwhile purchase for both the casual and more experienced observer.
HALLEY'S COMET COMPUTER CASSETTE for the 4SK Spectrum Computer; price £6.95

Reviewed by Martin Chick

There are two programs on the cassette tape: Computer Orerry and Computer Planetarium. The cassette tape is complete with a set of good instructions. Both programs are simple to use and the screen displays are very clear.

The Computer Planetarium shows the Sun, Moon, Planets and Halley's Comet, also a star display of some 246 stars of 3 magnitudes, the program runs in Solar and Sidereal Time. The screen refreshes every 15 or 4 seconds if the stars are omitted. There are also Sky effects, twilight, etc. One difficulty is the identification of constellations as there is no facility for this.

Computer Orerry is a four-dimensional model of the solar system showing the orbits of the planets and Halley's Comet around the Sun. This is an excellent program for education, easy to use and a good screen display.

To conclude, both programs are reasonable value and can be used for teaching and studying the movements of planets, etc., in our solar system.

Available from Arena Scientific Computing, 23 Crawley Avenue, Hebburn, Tyne and Wear, NE31 2LT.

HALLEY'S COMET IN HISTORY
Edited by F P Stephenson and D R Malan
From British Museum Bookshop; price £5.50 6pp (softback)

Reviewed by Rosemary Naylor

This book has been published to accompany the exhibition of the same name currently showing at the British Museum in London. It is a scholarly production which draws upon the uniform text recorded in Babylonian tablets in the possession of the British Museum. These have been translated by the late Professor Abraham Sachs to reveal some 2,000 astronomical texts written between 1000-500 BC.

Chinese records, dating back to 782BC, list the appearances of "broad stars" and "burn stars", as witnessed by astrologers.

Painstakingly, these various records have been sifted to find references to past returns of Halley's Comet from the first reliable record in 756BC onwards. European observers have left accounts of sightings of the comet. Taken together, this represents a remarkable piece of detective work, begun by Halley himself, and very much expanded by the publication.

The British Museum exhibition runs until early May.

SPACE GARBAGE
by Jack Meadow
Published by George Philip: 160 pp, £7.95

Reviewed by Rosemary Naylor

Professor Jack Meadow states in the foreword that anthropologists have learnt a lot about the way in which we have evolved from our rubbish dumps. He suggests we have much to learn about the early history of the Solar System by studying interplanetary debris. Hence the title "Space Garbage".

The author draws upon his own researches to describe in an entertaining way the relationship between Venus and the little bits of matter which exist in and around Earth's orbit. This is a full account of meteors, asteroids, and comets arranged in a thought-provoking way. I don't like the cover, although appropriately appropriate. The contents I strongly recommend to beginners and experts alike. When they have grown tired of Comet Halley, this book will remain a useful guide.

A photograph taken of the sky with a standard camera can be disappointing, as little of the sky appears on the picture as compared with the view seen with the naked eye.

But there are attachments for cameras that extend the field of view to allow the entire sky to be shown in a single photograph. Such cameras are the best way to show the Milky Way, auroras and the relationship between constellations, and in the daytime the rainbows and clouds become a feature.

This article discusses some of the principles involved and ends with a simple, low-cost, all-sky camera built by the author.

When you fit all the sky on to a single picture, it ends up circular in shape. Straight lines are bent into curves, and objects nearer to the horizon appear compressed.

A lens required to produce this view is called a field lens, unfortunately the cost is high, many hundreds of pounds. A second option is to have an adaptor fitted over a standard lens. These are cheap but have two main disadvantages. Firstly the picture quality suffers, and secondly the maximum aperture is greatly reduced, requiring long exposures. The third option is to have a camera above a deep caved sphere, similar to those security mirrors. Even this has its advantages. However, the camera and its support will block off part of the sky. An SLR camera is almost a must as your focus on a virtual image that curves slightly and lies below the surface of the mirror. Condenser lenses as used in slide projectors and photographic enlargers are ideal, just have the surface aluminized as for telescope mirrors. The largest generally available are about 100mm in diameter, and will fit the frame of a 35mm camera at its closest focusing distance.

Next comes the mounting to hold the camera and mirror apart. Cut two triangles of plywood, the larger to hold the mirror, the smaller just larger than a hole required to fit the camera which will be cut out in it. These two triangles are separated by three strips of plywood, with notches cut at each end, which slide into similar notches in the outer frame of each triangle, keeping the notches in the strips at right angles to the long edge, not angled. As you assemble it, the tension required keeps it together without the use of screws. The mirror is held in by three nylon screws around the rim. This assembly is raised off the ground by three legs, as used on coffee tables, screwed into plates attached below. An additional refinement is a coll of 20cm up to 20cm wide, which can be heated by a pair of rechargeable batteries, to prevent dewing when necessary.

A delayed lunar occultation
by John C C Larard
Southern Astronomical Society

This year I timed my first occultation eleven years using the same 7.5cm refractor that I used as a schoolboy in 1954. In my instrument, which is gradually falling to pieces, is still operational.

While sweeping across the area of the night sky with binoculars on April 19-20, I saw a bright star near the southern limb. It was 20 085 or 20 075 (far off line) and not surprising that I failed to see it. In the daytime the sky was easily visible in my telescope against the earthlit crescent of the Moon.

The wind was blowing from the NE at Force 9 and caused the temperature at 20h 07.5UT to be only 38.75µ. I could not believe that my last occultation had lasted for 20h 57.5µ in 1973 using the 45.7cm Radcliffe refractor at the University of London Observatory, Mill Hill. Really, what had I been doing in the intervening years?

1985.

Construction plan for all-sky camera

In use, this all-sky camera operates at the same aperture as your camera lens. Exposures of 2 to 3 minutes can be made without showing any noticeable trailing of stars. Furthermore, the image is reversed left to right, which is ideal for the purpose and makes the limit magnitude as good as that of the eye stars, and thus produces a very true picture.

Do remember that because it is a mirror, everything is reversed left to right, which can be corrected if you do your own work.

(For further reading, see Sky and Telescope June 1982 and July 1983.)

Society News Round-Up

STUART LANDAY

A cheque for £250 has been received from the William Harding Trust and this is to go towards the £45.111.111.000 trust fund and will be used for a new observatory.

October 12 saw a quiz between Aylesbury and Lytham triggered by Mr. J. B. C. Cox, a member of the Trust. Aylesbury unfortunately lost but with only two points in it.

Anyone fancy any new eyepieces about 10 years old? A Mr. Franklin at Watford 21485 has some for sale. Four of them feature the size of a large sheet of paper. Reasonable offers please.

BRAINTREE, HALSTEAD & DISTRICT AS: A meteor watch was held on August 11/12 along with some members of which is Heathrow London AS. An estimated 300 meteors was
CRAWLEY AS: There are no meetings during summer months for Crawley as I write but read the latest Newsletter, society news is included. In fact there is no society news!

A special attempt at observing the Perseids was being arranged for the Astro Camp. The rest of the Newsletter contains four pages on Astronomy!

BRIGHTON AS: Last year's disappointing attendance and membership figures were slightly better this year and more monthly meetings and better publicity.

The society was represented at the Brighton Carnival in July with some telescopes on show, which unfortunately were responsible for the sun play hand-see on the closing parasol pointed toward to show the public the sun spots! A display of postcards and handouts together with a mural depicting Halley's comet on the afternoon sheltering from the rain which came after the sun set.

The evening, however, was a perfect one for observing with two members of the public staying until past midnight. It was agreed that some interesting objects were generated in the meeting, it was worthwhile.

Secretary, Philip Taylor, was in La Palma for the inauguration ceremony of the "Observatorio del Roque de los Muchachos", the British Isaac Newton reflector being one of the telescopes of course. Philip was working in La Palma observatory during the week before the opening so he was on the spot.

The society's loan telescopes were not being well used by members.

BRITISH METEOR SOCIETY: The BMS Handbook Vol III and IV were published in July and Vol V was to be entirely devoted to radar meteor work.

A new style Radiant Catalogue will be published in 1986 October and advance orders at the same price as for the publication in 1985 are now being accepted.

To this says that various other special publications are planned for the future. Including a fireball catalogue presenting details of all world events known; a 3-volume observational database making available a valuable fund of data for research purposes, never before published and a brand new book covering meteor astronomy and allied fields.

EDINBURGH AS: During the winter, the usual monthly programme of lectures will take place at the University of Edinburgh. On 29th January, Speaker, John Fletcher, our local modular star, achieved national fame by being the only one to photograph Halley in the UK, and was recently featured in a book he has written called "From Quarks to Quasar".

A painting competition for local schools attracted over 50 entries.

Jupiter was also looking along with Andromeda.

Due to the great amount of interest shown, it is proposed to hold further public observing evenings when the comet becomes much brighter.

MARSHELLOCH SCHOOL AS: The official opening of the school observatory took place in October and the honours guest was Prof. Stuart Malin of the RGO. It marked the end of 23 year hard work.

The telescope is an 8-inch reflector of f6.6 on an equatorial mount, and was a present from Koenig Observatory. It was used with some difficulties with the mounting, it proved to be an excellent telescope. Good views of the Moon and Jupiter have been obtained with several other interesting objects.

The dome of the observatory, which by the way was converted from an old animal house, is the bottom half of a septic tank! This runs round on six nylon wheels on a track. The area beneath the observatory provides a display area and a members' room.

Anyone interested in seeing the school observatory can contact Ken Philp or Kevin Mayfield, The Observatory, Marschillock School, The Ridgeway, St Albans, Herts, AL4 9XK.

NEWCHAPEL OBSERVATORIES & PLANETARIUM: Outline plashing permission has been given for the establishment of the "Natural Sciences Visitor Centre" on the land adjacent to the observatories and Planetarium. The Centre, when opened, will provide a unique compilation of astronomical and natural scientific facilities.

It is hoped to include an exhibition building, having hot conservation features and occupying the land, displaying exhibits associated with the theme of the Centre. Latest advances in spaceflight and astronomy, alternative energy, environmental protection, education and community work will all feature.

As Mike Page says, "The creation of the Visitor Centre will be a challenge more so than the dream that became a reality twenty years later, when Newchapel Observatories & Planetarium came of age. The extent of the facilities and the interest created will be formed by the imagination and skill involved."

We all wish you the very best of luck in this adventurous project.

NORTH EAST LONDON AS: Member Stephen Merry managed to get permission to use the 26-inch refractor at Greenhills. Stephen, let us know how you went on.

LEEDS AS: Meet at the Polytechnic, Calverley Street, Leeds, from 7pm to 9pm, second Wednesday of the month.

Production problems have meant that the society magazine "Umbra" has not been seen as regularly as would have liked. There has been a slight increase in membership.

The YAS Astronomical Competition was staged by Leeds during October.

LUTON & DISTRICT AS: Wives David White, "Thanks to almost ideal weather conditions, NAAAS was a great success. Over 200 people came to the public observing evenings, despite having to endure temperatures which were well below zero, they were treated to some splendid views of Halley. While the society created an easy object to see, many people reported that they were unable to find it in binoculars.

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NORTH EAST LONDON AS: Member Stephen Merry managed to get permission to use the 26-inch refractor at Greenhills. Stephen, let us know how you went on.
orsell: During early August an attempt was made to photograph Comet Halley with the 10-inch refractor but unfortunately it was not until the night of October 4/5 that they were successful. Using HPS and a 10-second exposure, the comet was seen on an 10x8 print (rated at 3200 ASA). The following weekend also provided an image of the comet. Members were wondering if these were the first of Comet Halley through the 10-inch or were some taken 75 years ago?

Member Eric Sims must have a very understanding wife: He took her and their two children on a field trip to observe the Perseids - perched on top of a cliff very exposed to the wind and rain. After counting 20 meteors and abandoning setting up his telescope due to the glare force wind, Eric got in and returned to the observatory.

A visit to the observatory by an group of children who were only interested in the telescope, but make a film of the whole thing as well. Sounds like fun, with over 40 children. four film crew, eight group organizers and five society members - all in the observatory at once.

Plymouth: Witten Clive Purchase: “At last, it gives us great pleasure to announce the completion of our 24-inch telescope. The telescope was in place at the beginning of the month, and it is now on the sky. The telescope is of 24-inch aperture, 24-foot tube, and it has the capability to observe the whole sky. The telescope has been used by several members of the public as well as members of the society. We are very pleased with the results and we believe that it is one of the best telescopes in the country.”

Sagres: Tony Roberts has been taken over from Norman Fisher as the chairman. Norman held the post for six years.

Farnham: have withdrawn membership from Sagas. Reasons, according to Arthur Good, President of Farnham AS, were that they thought the meetings held at Chichester, did not provide enough useful information. Also, Sagas is small and the journey to Farnham is too long. Members are now considering joining a club in the South East.

Source: 263.5x355.7

SHEFFIELD: Phenomenal! The only way to describe SSW. With only 4 clear evenings during the month, some 500 visitors saw Comet Halley, either with the 12-inch or through the numerous other telescopes and binoculars. The two public lectures brought in 200 people! Membership as you can imagine are still ringing with enquiries and the fact sheets we produced, some 1500, have all gone.

Local radio publicity was excellent. From profits made out of the week, a donation will be sent to the charity SENSE for deaf-blind children.

ERSKINE: At the naming ceremony of the J. R. engine “Comet Halley” on Thursday November 14 by Heather Cooper at Manchester Piccadilly. Included in the event was the visit to the museum, then to Jodrell Bank for a planetarium show and drinks. About 400 people were there.

We seem to have obtained insurance for our portable telescope and the option of the 12-inch, from CIS Insurance, under their “All Risks” policy. Anyone wanting details, contact me.

Darren Skindell gave a very creditable performance in the recent YGAS Astronomer Competition held in Leeds, he came fifth out of eight.

President, Kim Lindley, had his photograph of Comet Halley in the issue of January 1986 used in an article by Patrick Moore in the magazine "Space Voyage".

SOUTH SOMERSET: Writes Simon Hughes: “Last week I have some news for the Round-Up ... during the summer months, the members (of which there are about 12) decided to stage an exhibition in Taunton and also some observation evenings for the public to come along. Although I have just obtained an 8-inch mirror and flat with which I will build a reflector to accompany our 3-inch refractor. New members are always welcome. For further details, please contact Mr G McKeily, 11 Laxton Close, Taunton.”

SOUTHERN HERTS: At the High Top observatory, a massive concrete plinth to support the 6-inch refractor was built by a group of 20 people. A telescope was erected on top and it was hoped that this instrument would be more frequently used. The telescope is a Troughton & Simms.

During the week, more than 80 visitors saw the comet and the other "celestial wonders". The weather was kind with only two evenings clouded out, Thursday and Saturday. Several other people have also taken the comet as the comet approached the Pleiades.

The exhibitions at libraries and community centres were well received, leading to a large number of enquiries about the society. More on that 6-inch refractor - Horace Dall had re-frigured and re-cemented the two elements of the lens before he pronounced it "fit for use".

STEVENAGE & DISTRICT: It was reported that membership was increasing "most daily" as a result of the publicity for SSW. (I don't have any latest SSW information.

As with most other societies, a cheque for £1000 was received from the NAW Committee toward expenses.

It was proposed to visit the National Museum of Photography in Bradford in January next year and combine this with a trip to the AAC.

UNIVERSITY OF BATH AS: Writes Richard Zanetti: "A society such as ours differs from most, as the membership changes each year, with most of the new members joining with previous knowledge. The aim of the society is to introduce new members to astronomy and to help them understand the understanding as the year goes by. We have a semi-regular meeting once a week, when we discuss a topic or show a film. Next week we will have a discussion on "Planets" and we will have regular star watches and informal discussion meetings.

We have recently purchased a 10-inch reflector and observatory from BueLL AS. At present, we are trying to rebuild the observatory and we hope to have it finished for November 1986.

WES MIDLAND AS: In the north of the region the society was holding meetings in which discussions were held on topics such as "Comet Halley" and "The Moon". These meetings were well attended and there was a lot of interest in the comet.

WES OF LONDON AS: Arrangements had been made to use the 28-inch at Greenwich on the evening of November 4.

The society received 50 free tickets for the Halley Gala at the Nenebly Centre held on October 29. What was it like?

A donation was to be given to the charity SENSE, from profits made during the "evening with Halley" on November 11.

The December meeting was to be a sort of "Bruno Trust" with a panel of members answering questions on the comet. In particular, those that you always wanted to ask but were afraid to.

WEST YORKSHIRE AS: According to Derek Hutton, NAW was "simply unbelievable. During the week, an estimated 600 to 1000 turned up for a view of Halley. A number of members decided to join together with a view to creating a society. The new society will hold a meeting in the supermarket on December 13, 14 and 15.

Derek had a spot on television and was also on Radio Leeds. A camera crew from Yorkshire TV spent some time at the observatory. A "Birthday party" was held to celebrate Halley's 329th birthday!

For the telescope, an illuminated reticle eyepiece is being purchased to help out when guiding on long exposure photographs.

The Jodrell Bank observatory was raised 250 for funds.

Several members attended Huddersfield's Symposium on September 27. The W-fold contestant in the YGAS Astronomer Competition, Mrs. Ward, came second.

The three telescope mounts are being constructed to be placed outside the observatory. One will house a 3-inch refractor, one a 6-inch reflector and the other a camera drive. A solar filter has been acquired for the 3-inch.