

Federation of Astronomical Societies

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TUTORIAL

ern vandalism takes on various forms and
is a puzzle to know how to prevent it, or
one should react after it has taken
ce.

will read in the Round-Up of an attack
Solent Amateur Astronomers' Toothhill
ervatory. Elsewhere I hear that Mid-Kent
ronomical Society's Club House was entered
mindless intruders who did an enormous
unt of damage to telescopes and computers.
this instance, the Society's equipment
covered by insurance, but individual
bers' own equipment, also damaged, was

se attacks, harrowing to the societies
cerned, pale into insignificance beside
acks by governmental and local autho-
rity bodies.

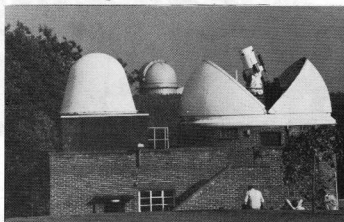
h has been said about the unjustifiable
ision to remove the Royal Greenwich
ervatory from its present headquarters
Herstmonceux Castle. Of course this is
the original home of this establishment,
there is no reason why it should remain
ever in its present location. However,
RGO is still concerned with time-
eping, or rather the Earth's rotation in
ce. One of the facilities made avail-
for group visits during our day at
stmonceux on October 4 was the Laser
nging Equipment. From its housing in
of the domes, the Satellite Laser Ranging
nds pulses out to particular satellites
and the returning beam is timed to give a
istance measurement from which the satel-
le's height is calculated. Orbits of
ellites are governed by the gravitational
fects of the Earth's interior, and by the
n and Moon.

w that this country has equipment function-
ing which is determining very accurately
the Earth's internal structure, what logic
there in destroying its scientific use-
lessness by demanding that it be relocated?
iving this equipment in mid-experiment is
other form of vandalism. The FAS has made
s opinion known, as reported elsewhere in
is newsletter.

fourth instance of vandalism has been
curring slowly over decades, by the agency
sheer neglect, in Sidmouth, Devon.
happily, I have to report that here, where
idmouth is synonymous with the Norman Lock-
y Observatory for many of us, the present
pers are about to put the boot in for the
nal time.

e Norman Lockyer Corporation has sold the
servatory site, consisting of land, domes,
long house, bungalow, pumpshouses and sheds
East Devon District Council. Most of the
nd has gone to the National Trust, but it
the domes which are now to be rendered
nally unusable. The other buildings on
te are very close to the domes and it
ems that these are to be converted to
estic dwellings, subject to the granting
planning permission. If this happens,
the domes will be in "the backyard" of the
w occupants of the site. Or put the other
y round, the ancillary buildings to the
mes will no longer be available to support
rking astronomers on site.

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The Satellite Laser Ranging equipment at the RGO

Photo: T Tislington

There is evidence that the East Devon Dis-
trict Council has been offered a large sum
of money by a professional astronomer (see
BAA Journal for 1986 August, p 303) who
wishes to restore this observatory to its
natural function. For some reason best
known to themselves, the local authority
prefers to ignore this offer.

I would suggest that all those astronomers
who deplore the demise of the Norman Lockyer
Observatory should write to the authorities
asking exactly what their plans are. If
these same authorities can be persuaded that
enough people care about this historic
establishment, then it might be that they
will reconsider. At least they will know
that the spotlight is upon them.

I cannot, from where I sit, detail exactly
what is happening in Sidmouth. I do intend
to write to enquire what plans are afoot.
If you regard this case of local authority
vandalism of sufficient concern to warrant
action, then write, either as individuals,
or as society committees, to express your
concern and to ask for information. The
address is:

The Chief Executive, East Devon District
Council,
The Knowle,
Sidmouth,
Devon.

Amazingly, the money is available to restore
the observatory to full operational use, but
the Council do not want it restored. What
an odd world we live in, or are our national
observatories really not worth fighting
for?

Another line of publicity would be through
the local newspaper, the Sidmouth Herald,
Sidmouth, Devon. A letter to the editor
could record your views.

Act now, and who knows, with enough people
making enough noise, we may yet enable one
of our colleagues to bring the Norman Lock-
yer Observatory into its working mode.

FUTURE DATES

1987 May 9 AGM and Convention
in Coventry
1987 October 3 Herstmonceux

FEDERATION NEWS

Subscriptions which were due
on September 1 should be paid
to Ken Marcus at the rates:-
£7.50 full rate
£4.00 for societies of 24 or
fewer members. Please note
that the figure quoted in the
last newsletter was incorrect.

***** ASTROCALENDARS *****

1987

The new astrocalendars run from
October 1986 to December 1987
and give sky notes month by
month. The price remains at 60p
each, to include postage, and
they can be obtained from Ken
Marcus. Cheques payable to
Federation of Astronomical
Societies please.

SPACEPRINTS COMPETITION

Extensive coverage was given in the April
and August Newsletters to the astronomical
competition which the FAS have tried to
organise on behalf of SPACEPRINTS of
Stockton-on-Tees, Cleveland, who have
generously offered £150 in prize monies.
Although entries were invited in three
separate sections, chosen to cover a range
of experience and expertise, entries have
failed to materialize.

This leaves the FAS Council wondering if
the goals to be achieved were too diffi-
cult, or if the time available was less
than necessary to produce a worthwhile
entry.

Whatever the reason for our failure, it
has been decided to withdraw the offer of
prizes. If those interested in winning
£50 in exchange for some reasonable effort
can suggest a different schedule for the
competition, then the Secretary would like
some response from you.

Please discuss this at your society
meetings and come up with a solution.
Lack of response has left the Council
baffled.

Ron Arbour at the opening of the Riverside Observatory, Cheltenham, in the garden of Bernard Abrams.



Iain Nicholson addressing a meeting of Boston Astronomers at Hedgehog Bridge Scout Centre



Photo: John Fletcher

Photo: Mark Dunn

AYLESBURY AS: During May the Society had a number of talks. Don Wallis talked about the constellation Canes Venatici. Although fairly blank, he told of many interesting clusters and galaxies which could be seen. The main talk was given by John Smith of the Wycombe Astronomical Society with excellent slides giving a survey of the solar system, and of some nebulae and galaxies. The last talk of the evening was by Peter Edwards, who demonstrated a camera tracking device he has made. The night was then finished off with observing with the Society 8 inch telescope. A meeting in July received a very interesting and picturesque talk about a trip to Australia by Tim Haynes to see Halley's Comet.

BIRMINGHAM AS: The Society is discussing ways of spending some of its money, on one or more expensive projects: a dedicated solar telescope; a radio telescope; the Amateur Space Telescope; or a Society computer. These projects are being discussed in great detail. A member has given details about an observation of the Lunar Glint which took place on 1st April. The sky was overcast and it was a case of having to know exactly where to look. The glint appeared shining through thick cloud. The next occurrence is known to be in sixteen years' time in 2002.

BOSTON AS: A correction should be made to a past Round-Up. Paul Money first observed Halley's Comet on the morning of 15 September 1985, with his 14 inch reflector from his home and so far as is known he was the first person to do so from Lincolnshire. Paul Money has begun teaching Scouts for their Astronomy Badge. Members visited Bradford to see the ImaX Space Shuttle film, and a number of members attended the AAC Star Party. A mini-convention was held during June at which Iain Nicholson gave a talk.

BRAINTREE, HALSTEAD AND DISTRICT AS: James Abbott showed slides of Halley's Comet, interesting because they showed variations in the tail during the period of his observations. Konrad Malin-Smith gave a talk about Pulsars. During a trip to Southend Planetarium members were shown a new gadget for displaying a solar eclipse. Members observed an occultation on the 19th May. Glyn Parsley gave a talk at the July meeting entitled 'Why is the Night Sky Dark?'. Fundraising events have been organised for the observatory fund, to include a sponsored run.

BRITISH AEROSPACE AS (BOLTON): The Society at present has a 6 inch reflector constructed by members, but is expanding its construction program and a further eight 6 inch telescopes are being made for members' personal use. They hope to produce a 12 inch. Also in the future they hope to build a purpose built observatory. Ian Cooper has written an article about photographing the Moon. Members attended the FAS Convention at the AAC.

BRITISH METEOR SOCIETY: The Journal was packed with very useful information: Spacecraft at P/Halley; the Official Results by Robert Mackenzie, New Minor Planet, etc. Details were given about Astronomy and Meteorology evening classes at the University of London.

CARDIFF AS: The trip to La Palma in April of this year was a great success and enjoyed by all participants. Cameras, lenses, binoculars, tripods and an 8 inch Mead accompanied the party which nearly took over the small plane on the inter-island flight. Three small hire-cars took the party up 8,000 feet (on an island where 4th gear is unnecessary) to an area near the telescopes for the first night. Other observing nights were spent near the sea. The only problems encountered were one member having his tripod and clockwork motor taken away from him on the flight home. Another member upset the airport X-ray machines by the coating on his eyepieces reflecting the X-rays. One official wanted to take the eyepieces apart but this was fortunately avoided. Norman was the only member of the party to lose his passport, hotel room key and car hire keys all on the same day!

COTSWOLD AS: The newsletter is called Mercury after the first planet the Society observed. They are very keen on Astrophotography. Three new observatories have appeared in the gardens of members, for a 14 inch, a 10 inch, and a 4 inch rich field Newtonian. They are now lucky in that they no longer carry several hundredweight of equipment in and out of the garden. Ron Arbour performed the official opening of the Riverside Observatory (formerly Mount Tuffley Observatory) which houses Bernard Abrams' 10 inch reflector. Dick Warden is to have a regular computing spot in the newsletter. Details were given of the new Comet Wilson and Bernard has photographed it. Members are very active observers and 23 members have made 956 observations. Vic Sage gave the members a tour of the Southern Hemisphere with slides.

DERWENTSIDE AS: The observatory site at Waskerley has been abandoned due to legal fees, but another site will be found. A display was present at the Derwentside Festival and seemed to generate a great deal of interest, a good day with sales of badges etc. Plans are set for an Astronomy Road Show to schools. A visit was arranged to see the Royal Observatory at Edinburgh.

FITZHARRY'S AS: A small but active society at Abingdon, attracting members from a large area: South Oxfordshire, Oxford, Didcot, Wallingford and Wantage. A talk was given by Ray Turner who is a spacecraft engineer working at Rutherford Appleton Laboratory. He talked about the many spacecraft observing Comet Halley.

GUILDFORD AS: Plans are set for a trip to Greenwich to observe through the 28 inch. Repairs are being carried out on the Aldershot Observatory, and the telescope is being cleaned at a nearby Army Workshop. Observing meetings have been a success during the summer months. Many things are planned for the coming season, including an idea for a trip to Paris.

HAMPSHIRE AS: The Society meets once a week with more than 70 members, and has various types of meetings including one for beginners, observing sessions, etc. An exhibition was held at Queen Elizabeth Country Park on a weekend and was a great success; displays included members' observations, telescopes, and flashy computer programs. Two lectures were held on both days. Other events of the Society include Skittle Evenings!

HUDDESFIELD AS AND PHILOSOPHICAL SOCIETY: The Society has been given a 6 inch telescope by an ex-member who is going to live abroad. Members went to a BAA photometer meeting at Birmingham. A cheque has been received from the local Council for the youth section, to the sum of £120, and a grant of £150 from the Leisure Services, although there are strings attached. The members have been active showing various groups the observatory, and attending meetings away, AAC, etc. A photometer is being built by members and is now being tested.

LEEDS AS: A member is involved in running a course at Leeds University Adult Education Centre, titled Astronomy and Cosmology. In conjunction with the York AS, it is proposed to visit various places of astronomical interest in the City of York. The Society hosted the BAA Meteor Section meeting during June. Details were given in the newsletter by Mark Simmon about the Green Flash.

WEST LONDON AS: Brian Mitchell has written an article titled "If You Can See It You Can Photograph It". Members visited the Cambridge Radio and Optical Observatories. A small party went to visit the Astronomy and Space Science Convention at Mid-Cent College. Brian Mitchell has described "Things to do on the Moon". The Society has a project to build a 30 inch mirror. A trip is organised to visit the Old Greenwich Observatory.

NORWICH AS: Brian Mitchell has written an article titled "If You Can See It You Can Photograph It". Members visited the Cambridge Radio and Optical Observatories. A small party went to visit the Astronomy and Space Science Convention at Mid-Cent College. Brian Mitchell has described "Things to do on the Moon". The Society has a project to build a 30 inch mirror. A trip is organised to visit the Old Greenwich Observatory.

SAGAS: Societies have been active this year. Croydon celebrated its 30th anniversary. Members attended the Astro Cam.

SCOTTISH ASTRONOMERS GROUP: This Society includes members from the Outer Hebrides to Carlisle! An Astronomy Day is to be held at Inverness in October. Inverness has no Astro Society. Dundee AS celebrates its 30th birthday this Autumn. Talks have been given by Dave Gavine, Peter Waddell and Robert Law. Dundee skies were cloudy for the meteor watch in August, but they hope for better weather this winter.

SOUTH EAST KENT AS: National Astronomy Week yielded more new members. Members are to visit the Millard Road Astronomy Observatory at Cambridge. Steven Clover went to South Africa in April to see the Comet. Many observing sessions are to be held this Autumn and Winter.

SOLENT AMATEUR ASTRONOMERS: An active Society, making observations and reports which are sent to the BAA. Clubhouse and observatory are under construction at Rowhams Reservoir. Members are currently restoring the Toothill Observatory which was struck by vandals. The Society are looking for any bits that could be useful for a 10 inch or 12 inch telescope (tube etc). If you have something please let the Society know.

Several members went to Australia and South Africa to see the Comet.

SOUTH WEST HERTS AS: Forty-five members and guests attended the Society's Barbecue. Maurice Newman gave an illustrated talk on Uranus. The new arrangement of regular weekly observing sessions on a Saturday appears to be successful.

WELLINGBOROUGH AND DISTRICT AS: Noel White gave a lecture on Halley's Comet, which contained several models. During June an Astro-Quiz was held. A number of trips to London and the Cambridge area are to be held. Radio Northampton are giving out monthly Astro Info on the first Thursday of each month, at around 2.30pm on 1107 Khz MW.

WEST OF LONDON AS: Members attended the FAS Convention at Coventry. Vice President Robin Soagell talked about sundials at the July meeting. During August there was no regular meeting but members were active on observation nights.

MEETING: The Society will be a full demonstration of processing and printing black and white film to aid those interested in astrophotography.

WEST MIDLANDS AS: Has anyone heard anything in the press about a Meteor Storm/Fireball that occurred on February 23-24? If so, a member of the Society would be interested. John Randall gave details in the newsletter about "The Road to Professional Astronomy or How to be a Professional Astronomer in One Easy Lesson!". W Atkins is to talk about "The Amateur Astronomer and his Telescope"; J Randall, "The Perseid Meteor Shower"; and A Lound, "Halley's Comet from Australia".

WORCESTER AS: The Society was formed in December 1984 and now has 35 members. Meetings take place each month at the College of Higher Education. Members attended many Astro events away from Worcester, such as an expedition to the Royal Observatory at Greenwich, AAC, and meetings at Chelmsley Wood. One of the Society members has an 8 inch telescope which he loans to other members. Three members went to La Palma and one to South Africa and the Namib Desert to view Halley's Comet. The Society is young but very active and new members are always made welcome.

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 15 December please.

Martin and Pam Chick
25 Calington Road
Gwaun Gysy (Nr Pontypriid)
Mid-Glamorgan CF38 2LL

MR SCHMIDT AND HIS CAMERA

by Mike Harlow, Orwell AS

Part 1: Bernhard Schmidt and his Work

Bernhard Schmidt was born on 30th March 1879 on the small island of Nargen off the coast of Estonia. Only 5 miles long by 2 miles wide and 12 miles from the mainland, life on Nargen was dominated by the church and farming. It is remarkable that from such an isolated environment such an influential figure should emerge. Despite his parents' emphasis on a strict religious upbringing, his instinctive interest in science soon became apparent. When he was eleven he was already experimenting with gunpowder, and as a result he almost lost his life. In one experiment while packing powder into a metal tube it exploded and he lost his right hand and forearm. Yet despite this devastating accident he maintained and developed his interest in maths and physics. In the years that followed he became interested in optics and working from drawings of a camera in a book he ground a lens from the bottom of a bottle, mounted it in a cigar box, and with some of the photographic plates from his friend the village chemist he actually took photos with it. This was a sign of greater things to come.

In his teens he enrolled as an engineering student in Gothenburg, Sweden, where he specialised in optics. While studying there he came across the work of the German optician Stehl, and, after completing his studies, Schmidt left for Germany to seek him out. Stehl had worked at Mitteleida but when Schmidt arrived Stehl had gone elsewhere. Schmidt, however, liked the place and decided to stay.

and selling them to local amateur astronomers. In the beginning he made them only for the amateurs but soon orders came in from the professionals as well, when they realised how good they were. Beginning in 1900, Schmidt made mirrors up to about 8 inches in diameter. In 1905 he made a 16 inch mirror which far surpassed anything then available, and as his skill developed he worked on figuring 12, 20 and 24 inch objectives for Leipzig, Potsdam and Hamburg observatories. It is remarkable that all his work was carried out with his left hand, his only hand, and that he never used machines.

His reputation spread rapidly and he was offered several jobs by the great German optical companies of the day. Despite these offers, however, Schmidt wished to maintain his independence. A man who disliked regimentation, he worked only as the mood took him.

By 1920 Schmidt had made several mirrors for Hamburg observatory at Bergedorf and in 1926 the Director of the observatory, R Schorr, eventually persuaded Schmidt to join the staff, albeit as a "voluntary colleague" as Schorr described him. Schmidt maintained his irregular, independent style of work, often roaming off into the nearby woods instead of being in the optical workshop.

From the beginning at Bergedorf, Schmidt was set on overcoming the limitations of conventional telescopes. The details of his design will be explained in Part 2. In 1929 he went on an eclipse expedition to the Philippines with the great astronomer Walter Baade, and during this trip Schmidt told Baade that he had at last solved the problem, in principle, of producing a reflecting telescope that not only had a large aperture but also had a wide field of view. Baade, realising the importance of this new design, urged Schmidt to build one as soon as possible, as did Schorr on hearing the details. Despite this, however, Schmidt continued his apparently aimless walks in the woods, insisting that he had to solve the problem of how to grind the complex curves involved in his design.

His ability to work was phenomenal once he started. On one occasion, Baade visited him to find him sleeping after 36 hours' continuous work. The camera was completed in early 1930 and soon produced fine photographs. Schmidt's design, described in detail next month, has a large mirror at the bottom of the tube, a thin glass plate at the top end, and the film on a curved surface facing the mirror in the middle. The first camera built had a 14 inch glass plate, a 17 inch mirror, and with a focal length of 25 inches had a photographic speed of f/11.7 - incredibly fast for such a large instrument.

Photos from the camera initially failed to impress the European astronomers, but as soon as Edwin Hubble of Mount Wilson saw them he immediately asked what was the largest Schmidt camera that could be built. The answer turned out to be 48 inches diameter for the glass plate with a 72 inch mirror, and for this reason the two large cameras of Mount Palomar and Siding Springs are of this size. Anything bigger would run into technical problems.

Schmidt continued work until his death on 1st December 1935. The 48 inch Schmidt of Mount Palomar was completed in the late 1940s, and continues to be of immense value to astronomers; a great tribute to one man's insight and optical genius.

Resolution on the Closure of the RGO

The following resolution was agreed by Council and sent to the local MPs:

The Federation of Astronomical Societies, representing the views and interests of thousands of astronomers throughout the country, both amateur and professional, deplors the decision to close the Royal Greenwich Observatory at Herstmonceux. The Royal Greenwich Observatory at Herstmonceux has been of the greatest help and encouragement to amateur astronomers of this country, upon whom the professional must depend for recruitment into astronomy and many other branches of science.

This decision to sacrifice one of Britain's senior and most respected scientific institutions apparently upon the altar of political expediency should be reconsidered before untold harm is done to British astronomy, which is, and must continue to be, reckoned throughout the world.

Light Pollution

My thanks to the Leeds AS for sending in a very interesting letter concerning light pollution. Now what about other societies? You must all have a view and it is most important that Council know what is happening in the field, so do write and let me know.

DAVE POWELL

EDITOR'S FOOTNOTE: Tony Higgins of the Leeds AS wrote to Leeds City Council asking if there was any chance of shielding street lights, thus allowing more light to shine on the road and not into the sky. He also underlined the fact that the present design of street lamps is inadequate. As a large percentage of the light shines into the sky, this is a waste of electricity and ratepayers' money.

Perhaps Tony will let us know what reply, if any, he received from Leeds City Council.

MY INTERNATIONAL ASTROPHOTOGRAPHY PROGRAMME

Graham Young, Dundee AS

My International Astro-photography Programme (IAPP) is a beautiful fusion of four great personal interests; the science of astronomy, the written discipline of keeping a record book, (which I have done for every day since 1972), the technical art of photography and darkroom management stemming from art student days and my love of travelling at home and abroad.

The programme began in the mid-seventies as part of an 'O' level project, with shots of starfields and lunar phases, eclipses and sunspots. In a few years I had used many different types of cameras and films. Now I have a small library of photographs recording the position of planets, including Uranus, Neptune and asteroids, and other phenomena taken over the years. Many photos are purely artistic, as the full Moon rising over the Firth of Tay reflecting off McConagall's 'Silvery Bay' at Midsummer.



Using the 10 inch refractor at the Mills Observatory, Dundee, I have worked on the Dundee Lunar Atlas, before leaving Scotland to settle in Leeds. Visits to Liverpool, Cambridge, Greenwich and Keele followed.

In 1980, the Olympic Games was an excuse to go to the Soviet Union, where I toured this vast continent. Thus starfields over Lake Baikal joined those taken over Loch Ness. The midnight sun was a new experience.

1982 found me touring Europe, Scandinavia and North Africa. From the Marakech Hostel I saw my first ever black starry sky at the mid-summer solstice; and the sting of Scorpio.

Australia-85 was an opportunity for a complete photographic coverage of the Southern hemisphere during a three-month autumn/winter programme.

Australia has many advantages. I paid particular attention to the centre of our galaxy and to the very old and very young moons visible in the rapidly changing dawn and dusk skies. It was a new experience to have the sun moving from right to left across the sky.

My comet count includes Iras-Araki-Alcock and Sugano-Baigusa-Fujikawa. 'Alcock' I shot near the head of Hydra; not possible from Britain since it was daylight there.

The Jupiter-Uranus conjunction was photographed between the palm trees of Waikiki Beach, Hawaii. But then it was cloudy in San Francisco and Los Angeles.

Canada offered an aurora display to beat anything in Dundee.

My interest in international photography has taken me to observatories all over the world, including in 1984 those in the Netherlands, Luxembourg and the Vatican. I still have to reach Mount Aea and hope to follow in the footsteps of Captain James Cook who visited 'Smith to observe a transit of Venus. Also I have still to see a total solar eclipse.

ASTROPHOTOGRAPHY

Geoffrey Johnstone, Tudor Cottage, Stoneleigh Road, Blackdown, Leamington Spa, CV32 6QR.

I was delighted recently to receive letter from Dr Vincent of the Dundee Astronomical Society including a photo of Halley's Comet taken from Australia using a photograph was taken with a Praktic f/1.8 using a Scotch Mount. The exposure was three minutes and showed an area amount of detail. Not only the comet but also the globular cluster Omega Centauri, together with part of the Southern Milky Way. Not having fast slide film available at the time, and with the need to produce slides to show at meetings Dr Vincent photographed the print on slide film, apparently very successful. Slides can be produced directly from colour negatives by a specialist laboratory, such as Fishwick's of Liverside; alternatively they can be copied at using special Kodak film, although giving the correct colour balance is difficult for the inexperienced.

I would now like to turn to planetary photography as I have recently had success in recording Jupiter showing principle cloud belts and red spot. With Jupiter well placed now for the winter months, it may be worth a go. The main difficulty with planetary photography is the very small image is produced at the prime focus of a Newtonian telescope. The size of the image will depend on the angular diameter of the planet and the effective focal length of the instrument, and will normally be some form of amplification by a Barlow lens, eyepiece, or both. My best results were obtained with a Barlow and produced of about 3mm in diameter. This is small, but by using Kodak 2415 film developed in D19 it is possible to extract the image ten times without the appearance of unpleasant grain. Furthermore, copying the negative to produce a larger projected image was very pleasing indeed with my telescope, a 25 Newtonian, that an exposure of about 6 seconds produced good results. With an exposure as long as this a mounting and steady seeing are required.

FILMS FOR HIRE

Societies with facilities for showing films might like to know that the films of the Voyager encounters with Jupiter, Saturn and Uranus are now available in this country. These can be hired from the British Interplanetary Society (telephone 01 735 3160) and from the Central Film Library (telephone 01 2345). Beautiful photographic and graphics make these historic expeditions unforgettable.

RATES FOR DISPLAY ADVERTISEMENTS

Full page £65
Half page £35
Quarter page £19

Smaller ads are £1 per single column a minimum charge of £4.

Copy for Newsletter No 12 should be sent to Editor by end of December.