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FEDERATION OF ASTRONOMICAL SOCIETIES

<http://www.fedastro.demon.co.uk>

FAS Convention 2000

Saturday September 30th 2000

Rutherford Appleton Laboratory near Didcot in Oxfordshire.

Dr Richard Harrison (Rutherford Appleton Laboratory) - "The SOHO Mission"

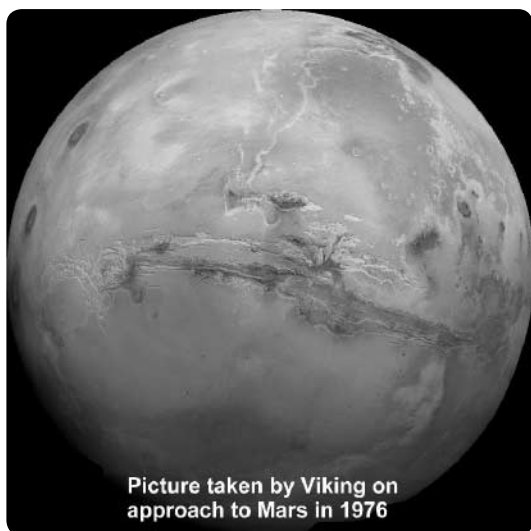
Dr Bob Owens (National Museum of Wales) - "Kuiper Belt Objects"

Nik Szymanek (Havering AS) - "CCD Imaging"

Professor Phil Charles (Oxford) - "Towards the Event Horizon"

Professor Mike Edmunds (Cardiff) - "Sir Isaac Remembers..."

Will We Ever Get To Walk On Mars?



Picture taken by Viking on approach to Mars in 1976

In December of last year, two probes were launched toward Mars, as part of an on-going mission to explore the red planet. During November and December of 1999, these probes both reached Mars. But it now appears that both probes have met with disaster. This raises the question of whether Man will ever get to walk on Mars. Is it safe to even try?

This article looks at the successes and failures on Man's attempts to explore our planetary neighbour.

It is already known that the Mars Climate Orbiter burnt up in the Martian atmosphere because someone at NASA confused miles and kilometres and sent the craft speeding into the Martian atmosphere to a fiery end. The fate of the Polar Lander is not yet known, but two weeks after it should have landed and started transmitting, no word has been heard from the craft. It is believed that either it too, burnt up on entry, or crash-landed. Both these craft are just the latest victims of the terrible Martian curse on space missions there.

Man's Quest to reach Mars began in 1962, but has been plagued by disasters and mistakes from the start. The first craft to make the attempt was the Russian ship Mars 1, launched on the first of November 1962, but contact was lost only 106 million kilometres from Earth.

Other missions have included:

Mission:	Launch	Mars Arrival	Orbit (km)	Remarks
Mariner 3 (USA)	5/11/62	-	-	In Solar orbit. Contact was lost soon after launch.
Mariner 4 (USA)	28/11/64	14/7/65	10,000	Successful. Returned 21 pictures and some data.
Zond 2 (USSR)	30/11/64	Aug. 65?	?	Contact lost on May 2nd 1965
Mariner 6 (USA)	24/2/69	31/7/69	3390	Flew over equator of Mars, returning 76 pictures.
Mariner 7 (USA)	27/3/69	4/5/69	3500	Flew over southern hemisphere, returning 126 pictures.
Mariner 8 (USA)	8/5/71	-	-	Crashed in Atlantic Ocean immediately after launch.
Mars 2 (USSR)	19/5/71	27/11/71	Landed	Achieved Mars orbit, but Lander crashed on the surface.
Mars 3 (USSR)	28/5/71	2/12/71	Landed	Orbiter sent data, Lander contact lost after 20 seconds.
Mariner 9 (USA)	30/5/71	13/11/71	1395	Returned 7329 images before contact lost on 27/10/72.

This, as you can see, is not a very successful record. With only six out of sixteen craft actually returning useful data and pictures in 13 years, the odds appear to have been set against us.

continued on next page

Since the Viking mission, the Russians have also launched Phobos 1 and Phobos 2, both bound for the Martian asteroid moon of the same name. Neither of these probes completed their journey, as they were sent the wrong instructions that effectively shut both craft down when they were about halfway to their destination.



Viking 1's "Face on Mars"

The pictures that Viking 1 returned stunned everybody in their details, and caused a major surprise when a face was seen on the surface, staring back at them. This feature stayed a mystery until the Mars Global Surveyor arrived 22 years later and confirmed it was "just a trick of light and shadow."

The Mars Global Surveyor turned out to be the big Martian success story. Launched aboard a Japanese Planet-B spacecraft on July 4th 1998, it was sent to the Red Planet to map the entire surface using Radar.

Its mission was a total success and is still continuing. In fact, in the coming weeks, the Mars Global Surveyor is going to be flown over the landing site to see if it can spot the doomed Mars Polar Lander to try and determine whether it crash-landed or burnt up in the Martian atmosphere.

The detailed maps returned by the Global Surveyor have shown huge valleys and rifts in the surface that could only have been carved by water, tens of thousands of years ago, proving that vast oceans and rivers once flowed across the surface of our planetary neighbour.

Features on the Martian surface are all on a massive scale. Olympus Mons, a mighty volcano stands twenty-five kilometres high and is six hundred kilometres across at the base. This compares with the biggest volcanoes on Earth, in Hawaii, which are just nine kilometres high. Olympus Mons is so vast it can be seen as a bright point on the surface in many Earth-bound telescopes. Valles Marineris is believed to be the biggest valley in the entire solar system. It measures 4,500 kilometres in length and 600 kilometres across at its widest point and up to seven kilometres deep.

In 1976, Viking 1 landed on the surface of Mars and took some pictures of its surroundings that showed a rock-strewn barren landscape. It also took samples of the surface material and atmosphere. We learned that the Martian atmosphere consisted of 95% carbon dioxide (the main contributor to global warming, here on Earth) and also that the surface of Mars was made up of elements similar to that of the "seas" of our own Moon. However, we had to wait another twenty-one years to take proper look around.



It was not until the Pathfinder mission, landed on Mars on the fourth July 1997 that we got to take a journey across the surface of the planet. Launched on 4th December 1996, Pathfinder carried a small vehicle called "The Sojourner" which could be driven around the landing site looking at surface features and returning valuable pictures and information. Like the Global Surveyor, this mission was a total success.

We have learned a great deal about Mars from the probes we have sent there, but there is still a great deal to do. One of the main questions has eluded us for many years, but has proved a great resource for science fiction writers. Is there, or was there once, life on Mars? Not so very long ago, a meteorite believed to be from Mars, was found to have what appeared to be microscopic fossils contained within it. It has never been conclusively proven that there is not life still on Mars. Possibly within the polar ice caps, single cell creatures could still survive the cold and hostile conditions there. The Mars Polar Lander also carried a probe called Deep Space 2, which was going to crash into the surface of the ice cap at high velocity, puncturing through the surface and examining what exists within the ice. One day we will know for sure, but, for now we must keep guessing and theorising.

So where do we go from here?

Following the failure of the Mars Climate Orbiter and the Polar Lander, (which also carried the first interplanetary microphones, so we could listen to sound from another world) NASA is re-assessing its mission series to the red planet. There are already other missions planned with a new Sojourner planned for launch on Mars Surveyor 2001 and there are three other missions between now and 2005.



But the ultimate goal of the human race is to colonise Mars. It is hoped by many, that some day in the distant future, man will be able to live on Mars in a domed city, and slowly "Terraform" the planet to create a living, breathing planet once again. There are many debates as to whether we should concentrate on the Moon first, before moving out into the Solar System, but my personal opinion is to move on out towards Mars, using the International Space Station, currently being constructed in Earth orbit, as a launch platform to start our journey to our beautiful red neighbour and begin the manned exploration of our Solar System.

Whilst I know it will not be in my lifetime, I would like to believe that Man has begun to push forward from the confines of our home world, out into the vastness of space, beyond what we know and love. Out to new worlds and on toward the stars.

Article Donated by: **Paul Thompson. (Treasurer, Newbury Amateur Astronomical Society)**

This article can also be found at: http://www.naas.clara.net/Mars_walk.htm

The Amateur Telescope Maker

Articles have been written throughout the years, in astronomical magazines, about many famous astronomers and telescope makers.

I thought, it was high time, to write an article about a present day amateur optician, whose passion for telescope making, goes on even today.

I refer to a very good friend and mentor of mine, Roland Tarver. Many of us in the North Devon Astronomical Society have listened to his talks on telescope making which sparked the interest of many of us.

The Early Years

Roland was born in Preston (Lancashire), on June 10th 1919. He has no outstanding optical memories of his early years, except a book on astronomy and his father's field glasses. The pictures in the book and images through the glasses left an impression on him but most of all a gift of some loose lenses gave him many hours of doing experiments, combining them to make microscopes and telescopes.

As a teenager he enjoyed an outdoor life, camping, rock climbing in the Lake District, but Hitler was banging his drum, so Roland joined the Army in 1939. After a year or so he was selected to go on a course for Radar. Roland eventually left the Army as a class W reserve (a specialist to you and I). This took him into industry testing the latest auto follow field radar units working on a 10cm wavelength. Each unit was tested on a balloon target, which was followed optically with an elbow monocular.

His knowledge of optics came later, when a science teacher showed him how to find the focal length of a mirror.

The Start Of an Optical Career

During the war Roland married Nora. After his Army service they later returned to Lancashire where their daughter was born.

A stint of walking the beat as a policeman was Roland's next job. In his spare time he experimented with bits of optical equipment. When examining an old monocular a decorator told Roland of an old man in the country who had a large telescope. He went to see the man and was shown an old brass 3" refractor which did not work. The owner told him to take it and play with it, which highly delighted Roland.

The object lens was partly opaque due to a fungal growth. When trying to part the lenses to clean them he broke one of them. Delight turned to despair as it was not his telescope and enquiries to get a replacement were not successful. While browsing through the local library Roland found a book on "Constructing an Astronomical Telescope" by Matherson. However on reading the book, he found the instructions seemed to suggest specialist knowledge and ability. His glum looks were noticed by his wife Norah, who told him to try and make his own lens. This he did with two 4" discs of 1/4" plate glass and some carborundum grit. As far as I can gather the new lens was far better than the original one.

A transfer to police H.Q and working regular hours, gave Roland time to try and make a 6" mirror. As he progressed with the glass plate a curve began to form. The curve was tested using razor blades for slit and knife edge. The Foucault shadows at F8 looked o.k.

To test his next mirror, a 5 1/2" F3.7, Roland made a new test rig. This would give tests for Foucault, Ronchi, Pin Hole and Lyot phase contrast. A red filter could be fitted to test lenses, a second

tester was made to use Dall's null test (for those of you who have never seen a mirror test rig, have a look through books that show you how to make telescopes, you should see one in them). Now Roland could work to greater precision.

Texereau became his bible. Roland recommends any aspiring amateur telescope maker to follow Texereau's expertise.

A local science teacher joined Roland in his hobby and got a few school boys to make a 12" mirror. George Rowe helped considerably with computing the lens curves. They made two 100mm refractors, 6" refractor at F15, and a 10" lens.

Roland gave many talks to a number of groups. He also gave classes of adults instruction in making mirrors, each pupil making a good 4" mirror. Even Roland's daughter then aged 8 years finished her 4" mirror. When asked by people as to what telescopes they should buy, the answer is always "make your own". From the experience gained in the classes, the boys and his daughter showed that all ages could make good telescopes, given only verbal help.

Retirement to North Devon

Roland and his family moved to a little village called Beaford, in the heart of the North Devon countryside. He joined the local astronomy group (North Devon Astronomical Society) which is where I first met him. He gave a talk on mirror grinding and polishing, plus telescope making. I had been looking for a second-hand telescope, but after listening to Roland's talk and with his help made my own 8.5 inch reflecting telescope, with a wave front accuracy of 1/8th wave. Since then I have gone on to a 14" telescope and am now grinding a 10" mirror, all by hand I might add.

Roland has tested a few amateur mirrors and one or two professional ones. Good and bad mirrors were found. A bad one was sent back to the professional maker, who apologised and replaced the mirror, but as Roland says, with care and patience, almost anyone can equal the professionals and in some cases be better.

Roland also made a spectroscope using a grating of 600/mm, this could be varied in angle from about 27 degrees to 13.5 degrees, and so gave a spectrum from red to violet including the Hydrogen Alpha light at 6563 angstroms.

Wanting to take timed photographs of the heavens, Roland made a new graticule for his finder scope. This was a small circle round a point etched on glass. The radius was such, as to show the orbit of Polaris round the Celestial pole.

In 1990 Roland completed the mirror for the 20" Newtonian telescope, and with the North Devon Astronomical Society, completed the Dobsonian mount and the observatory to house it. Since 1991 the telescope has been in operation with one of the highlights of using it was seeing the marks on Jupiter's surface as the comet Shoemaker-Levy 9 crashed into its surface.

In the seven years that the telescope has been in use, literally hundreds of people have looked through it and "wow" is the sound you usually hear, especially from people who have never looked through a telescope before.

Currently Roland is polishing and figuring an 18" mirror, which will eventually go into the new observatory organised by the N.D.A.S in conjunction with a local school in our part of the country.

John Parrot
North Devon Astronomical Society

The Great Leonid Watch

There we both were, at the foot of the Montgo Mountain, Albert and I with cups of hot tea in hand! The night was clear and cool with just a slight breeze that caused the reflection of the setting moon to ripple gently in the cold dark waters of his pool. Albert's huge Meade telescope, in silhouette against the villa looked every bit the hideous monster of the night as it stood there three legged and covered with a blanket to protect it from the humidity of the cool air.

The gas planets Jupiter and Saturn hung like lanterns in the star studded sky, whilst the huge mythological figure of Orion stood majestically gazing down at us whilst thrusting his imaginary shield at the snorting bull Taurus by his side! By 2am the cold had begun to penetrate through the soles of my shoes and into my poor feet. We had experienced by then at least 3 hours of aching necks from looking skywards for a spectacular meteor storm, which the astronomical fraternity had predicted to begin a little later at 3am.

Albert, whilst thrusting his hands deeper into his pockets and puffing on a roll-up began to question whether the boffins had got their sums right and asked how they know about these things anyway! All I could do was to assure him that the Leonid Meteors were due and there is a prediction for some increased activity. Also one doesn't need telescopes for meteor watching. Just immense amounts of patience and good fitting neck collars!!

At 3:05am a bright meteor blazed its way across the sky overhead, leaving a bright meteor vapour trail in its wake! Then another, and then more, sometimes 3 or more at a time all shooting off in different directions. Many meteors were very faint and tail-less, discernible only out the corner of one's eye, whilst others lit up our surroundings. Albert cried out loudly "There, and another, blimey what a show!!" What was I doing? Well I could do nothing more than cry out numbers with mouth wide open as our visitors from outer space ended their lives in a dash to their deaths in the atmosphere above our head, but giving us in the process a fully fledged light show. A meteor storm and my first!

A meteor watch, to be of any real scientific value demands a minimum of five people; four of whom would be seated and facing the cardinal points of the compass to act as counters, calling out when a meteor is seen and one to act as the scribe to record the observation.

During the early hours of November 18th Albert and I undertook the task between us and counted over a one-sample hour period 700 visible meteors. Sadly however many more were certainly missed, at times a 'spray' of meteors passed overhead and out towards the west, uncountable due to the sheer numbers and there could be no doubt that the villa and Montgo Mountain obscured many more.

A most enjoyable meteor watch with the rest of the day spent in bed dreaming of the next meteor storm due in 2032. That will make me ...no that's a secret!

Mike Glazier
Javea & District Astronomical Society
Costa Blanca
Espana

Salford Astronomical Society

With the exception of a three week break at Christmas and New Year, the society meets weekly on Wednesday evenings throughout the year. The six month winter season ending on the last Wednesday in March, involves a series of lectures given by both amateur and professional speakers and are held in the Maxwell Building of the University of Salford, The Crescent, Salford (7:30pm). The lectures are interspersed with monthly public open nights (7:30pm) and members workshops (8:00pm) on the first and third Wednesdays respectively, which take place at the Observatory in Chaseley Field, Chaseley Road, Salford.

The summer session, with just the end of April AGM held at the University of Salford, consists of informal meetings at the observatory, with the continuance of the monthly public open nights.

The open nights are well attended. When skies permit, visitors are shown celestial objects through the 45cm Newtonian Reflecting Telescope in the dome and also through the members telescopes set up in the observatory grounds.

Hale Bopp may have a Moon

A NASA physicist claims that pictures of Comet Hale Bopp taken by the Hubble Space Telescope show that it has a satellite orbiting around it. Five separate images suggest that a 33km wide object is orbiting at a distance of 200km from the comet's nucleus. Astronomers in Chile and Hawaii also recorded a speck of light near the comet between September 1996 and January 1998. Brian Marsden of the Harvard-Smithsonian Centre for Astrophysics believes the comet may have passed close enough to Jupiter 4200 years ago to break up in the same way as Comet Shoemaker-Levy-9 did in 1994.

from Society for Popular Astronomy, Dec 1999

National Science Week

**Friday 17th March -
Sunday 26th March**

Stars By Night

Walking or Bird Watching by Day

Remote Herefordshire Cottage

Phone: 01981 550294 for Brochure

FAS Website

Several society E-mail/Web page addresses have changed, and I have had to remove them from the FAS listings. Please could an officer from the societies named below, send me the updated details. Any other society not listed at <http://www.fedastro.demon.co.uk/societies> is welcome to send me the relevant details.

Cleveland and Darlington AS: e-mail bounces
The Lewes Amateur Astronomers: out of date e-mail contact
Gwynedd AS: e-mail bounces
Wadhurst AS: e-mail bounces, Web page not found
Leeds AS: e-mail bounces, Web page not found
West Yorkshire AS: e-mail bounces, Web page not found
North Norfolk AS: e-mail bounces

Thanks in advance for your help.
Nick Quinn, FAS Webmaster, nick@nquinn.demon.co.uk.

Milton Keynes AS

Milton Keynes AS is entering the new Millennium with great expectations. Our first aim is to achieve charitable status. Thanks to the advice we have received from the FAS, this is well under way and will help us with grant applications.

The year 2000 started in our programme with cosmic fireworks when Pierre Girard talked about galactic collisions. Our astroquiz is held traditionally in February and is a hotly contested event. It was won by Pierre Girard with Andrew Baker, runner-up. The Sun rose as a subject of investigation when our chairman, John Bell, talked about our Daystar on February 25.

March 10 is the first of two open nights and we hope to draw crowds.

Slide shows, members telescopes, the society's 10-inch dobsonian and exhibition material will be gathered under the naive gaze of the medieval wooden carved heads of Rectory Cottages. Observing is carried out in a woodland clearing on the Duke of Bedford's Estate, leaving behind us the sodium drizzle of Milton Keynes which handicaps most of our members.

Norfolk will beckon later in the year as a prime observing location but as for most amateur astronomers, the 'backyard' is where most of the astronomical action takes place for our members.

Javea and District

The Javea and District Astronomical Society held its monthly meeting on 13th November 1999. A talk was given by our President on the practical considerations when buying Binoculars for celestial observation. It being the night of the expected Geminids we had a talk on meteor showers generally, meteorites and asteroids.

Field work consisted of observation of early Geminid meteors before breaking up so that members could return home for an evening, or night of observation, but unfortunately the skies in this area became progressively overcast.

Jean S. Preston
Secretary and Treasurer.

LYRA

Lowestoft & Yarmouth Regional Astronomers

At a recent meeting of LYRA on 16th Jan 2000, Richard Martin, an ex member gave a talk based on the subject of his degree research at the University of Lancaster.

Solar Coronal Holes and the Modulation of Galactic Cosmic Rays

Coronal Holes are areas of open field lines in the Solar Corona that are the source of the fast solar wind. The open field lines allow plasma to flow outward from the Corona resulting in the density being lowered in these areas. The temperature of a Corona Hole is ~ 1.7 million K whilst the rest of the Corona's temperature is 2 mill K. The size of the Coronal Holes is dependant on the Solar Cycle with the largest holes occuring just before Solar Maximum.

If a Coronal Hole is observed on the Solar disk pointing towards the Earth then the fast solar wind will reach Earth approximately 3-5 days later due to the spiral effect of the Solar magnetic field lines. The Fast Solar Wind "shields" the Earth from Galactic Cosmic Rays coming from the surrounding universe. This results in a temporary decrease in the number of GCR particles detected on Earth. The Sun rotates in approximately 27-30 days so the effect may be repeated at this period for another 5 rotations before fading even though a Coronal Hole may not be seen on a certain rotation. It may however return for subsequent rotations.

The whole subject of Solar-Terrestrial connection is important for meteorology and communications and Coronal Holes may have their part to play in determining space weather prediction.

Wolverhampton AS

Wolverhampton AS have had a good year since the beginning of the Society calendar in September. We began with a talk about Lunar Observing by Peter Grego. This was an excellent start to our programme and Peter greeted us with excellent drawings of lunar features made by members of the Society for Popular Astronomy. A meeting devoted to Society Members' observations of the 1999 Solar Eclipse was well received given the wide variety of observing locations members attained, right from Cornwall to Eastern Europe. We also had a Beginners Evening which went down well with newcomers to the Society. The star of the evening was Barbara Russell demonstrating "how to dress" for a nights observing, complete with impromptu striptease to show off what she was wearing! We came back to Earth at a later meeting when Barbara Russell gave a slight diversion from the usual astronomy talks when she presented "The Role of Rock". Not just the story of what planets etc are made of but how rock affects our daily lives. The 1999 session was completed with a slide evening and short talks by Members.

The new 2000 season began with a light hearted quiz night given by Michael Bryce and called "100%", loosely based on the TV quiz show "100%". For the next meeting we gave a very warm welcome back to Dr Eric Jones from Liverpool AS to talk about his preparations and experiences of the 1999 Total Solar Eclipse. This was not just any eclipse talk but more about the human reaction and publicity of the event. An excellent evening was had by all at a well attended meeting.

Later this session we have talks by Dr Ken Elliot about Spectroscopy and Frank Barretto about Encke. Malcolm Astley will give a talk entitled "A Bolt from the Blue" and Dr Gillian Pearce will be talking about medical problems facing astronauts.

Could society secretary's please update their FAS Handbooks with the new contacts (see Soc. Roundup). including the Secretary's telephone number.

SOCIETY NEWS ROUND UP

ABINGDON A.S

Contact: Bob Dryden 01491 201620
Or Sebastian Linfoot 01865 725094
Flat 10, Pembroke Court, Rectory Road, Oxford OX4 1BY
13th Mar - "Aurora", Neil Bone

AYLESBURY

Contact: Alan Smith. 182 Marley Fields, Leighton Buzzard, Beds.
LU7 8WN. Tel: 01525 374258

BEDFORD

Secretary: Lisa Harrington, 24 Swallowfield, Wyboston,
Beds. Mk44 3AE Tel. 01480 406350
E Mail:(Dave Eagle): daveeagle@observer1.freereserve.co.uk
<http://www.observer1.freereserve.co.uk>

BRADFORD A.S

Contact: David Cooper, 36 Pollard Lane, Undercliffe,
Bradford.BD2 4RN.
Bradford has now got it's own web site:-
<http://www.andybat.demon.co.uk/bas/index.htm>
E-mail: has@andybat.demon.co.uk

BRECKLAND ASTRONOMICAL SOCIETY

We have 11 speakers programmed for the year 2000, including
Sir Arnold Wolfendale, FRS, who has accepted an honorary membership,
four gentlemen from the Royal Astronomical Society, Dr Jim Lewis,
Institute of Astronomy, Cambridge, Jerry Workman and
four of our own members.

Meetings continue at present on the second Friday of every month,
starting at 7:30pm.

Contact: Spence Allen. Tel: 01953 850571.
E-Mail:sastrohing@AOL.com

BRIDGEND

Meets on alternate Fridays between Sept & June.
Contact: Clive Down 01656 740754
E-mail clivedown@btintnet.com
<http://members.aol.com.BridgendAS/>

CARDIFF

Contact: Mr D. Powell, 1 Tal-y-bont Road, Ely, Cardiff. CF5 5EU.
Tel: 01222 551704

Meetings are held at Dept. of Physics & Astronomy, Uni of Wales,
5 The Parade, Newport Road, Cardiff

16th Mar - "A personal view of the universe", Dave Eagle

CLACTON & DISTRICT AS

Meetings include a wide lecture programme every first Thursday of
the month, except August, at the Friends Meeting House, Granville
Road, Clacton-on-Sea. 7:30 - 10:pm. Beginners welcome.

Contact: David Pugh, 40 Hawthorn Rd, Clacton-on-Sea, Essex.
CO15 4QZ

Tel: 01255 429849

CORNWALL A.S.

Contact: Steve Harris, 26 Nanscober Place, Helston, Cornwall, TR13
OSP Tel: 01326 569254 E-mail:sph@eidonet.co.uk

AS of HARINGEY

Meets twice monthly on the 1st and 3rd Wednesdays. 7pm - 10pm.
NOTE: The new venue is the White Hart Lane School, Wood
Green. London N22.

Contact: Jerry Workman, 91 Greenslade Rd, Barking, Essex, IG11
9XF. Phone 0181 5077568

<http://www.garym.demon.co.uk/index.htm>

15th Mar- Dr Stuart Clark

"Life on other Worlds and how to find it",

5th April - Chris Jone. "Big Telescopes - Blessing or curse".

19th April - Dr John Rogers, "Galileo Mission Update"

3rd May - Prof Carl Murray, "Dynamics of the Saturn System"

17th May - Loughton AS, "The Physics of Star Trek"

7th June - Jonathan Shanklin,

"Astronomy & Science from Antarctica"

HARROGATE AS

Monthly meetings at "Friends Meeting House", Homestead Road,
Harrogate, usually on the last Friday of every month.

Contact: Bryan Bonser, 01423 331029 or Tony Bills, 01423 501976

HASTINGS AND BATTLE AS

Contact: Keith Woodcock 24 Emmanuel Road, Hastings, East
Sussex TN34 3LB. Tel: 01424 443883
E-mail: Keith@habas.freereserve.co.uk

HEBDEN BRIDGE AS

The society has 20-30 members and meets every 4th Wednesday
at Hebden Bridge Tourist Information Centre, 1 Bridge Gate,
Hebden Bridge.

5th Apr - "The chemically controlled cosmos", Dr Tom Hartquist,
Leeds University

3rd May - AGM + "Big Bang or Big Illusion", Ray Caswell, Bolton
A.S.

Contact: Peter Jackson, 44 Gilstead Lane, Bingley, West Yorkshire,
BD16 3NP. Tel: 01274 562478

JAVEA & DISTRICT ASTRONOMICAL SOCIETY

Meets on the 3rd Monday of the month at:

Javea (Xabia) International College, Ctra Cabo La Nao 21, Apartado
De Correos 311, Javea 03730, Alicante', Spain

Contact: Mike Glazier. Tel: 0034 96 285 3202 - 647 1785

LEEDS A.S

Venue: Centenary House, North Street, Leeds from 7:00pm
onwards. All are made very welcome.

12th April - "Design and Construction of Amateur Telescopes"
by Davis Ratledge, Gerald Bramall & Brian Webber.

10th May - "The Mystery of the White Dwarfs"
by Dr Martin Barstow.

14th June - "Thomas Cooke"
by Martin Lunn MBE (Yorkshire Museum)

LETCHWORTH

Meet on the last Wed of each Month.

Contact: Alec Wilkinson, 54 Broadmead, Hitchin, HERTS.
SG4 9LX

Tel: 01462 623654

<http://www.flexability.co.uk/ldas/>

LIVERPOOL AS

Ken Clarke, 31 Sandymount Drive, Wallasey, Merseyside L45 0LJ
(Please encl. large sae) Tel:0151-6383270 / 0151 7945356(24hrs)

E-Mail: ggastro@liverpool.ac.uk

<http://www.liv.ac.uk/~ggastro/home.html>

17th Mar - "The Russian Space Programme", Mr Phil Barker

LOUGHTON ASTRONOMICAL SOCIETY

The venue is Theydon Bois Scout Hall, Loughton Lane, Theydon
Bois, Epping, Essex.

Public Open Meetings twice per month during the winter on
Sunday evenings, 7pm-9pm.

Meetings every Thursday at 8:00pm.

Contact: Charles Munton. 14a Manor Road, Wood Green, London
N224YJ. 0181 8899253,

charles@munton.u-net.com

LYRA

Meet on the first Thursday of the month at the Elizabeth Denes
Hotel, Corton Rd, North Lowestoft. Starting at 8pm in the function
Room.

Contact: Richard Chilvers. Tel 01502 574010.

WebSite: www.lowestoft.net/lyra

MANCHESTER AS

Contact: MAS. c/o Godlee Observatory, UMIST, Sackville St,
Manchester. M60 1QD. (0161 2004977, 24hrs. Fax 0161
2287040).

<http://www.u.net.com/ph/mas/>

MIDLAND SPACE FLIGHT SOCIETY

Focuses on (you guessed it) space flight and exploration. Their bi-monthly newsletter is a mine of information on Shuttle, Ariane & Atlas launches. Along with almost all other launches into space from low orbit satellites to Deep Space probes.

Contact: Andy Salmon, Olympus Mons, 13 Jacmar Crescent, Smethwich. B67 7LF

E-mail: andy_salmon@compuserve.com

MILTON KEYNES AS

Meetings held at Rectory Cottages, Church Green Road, Bletchley, 8pm.

24th March 'Campaign for Dark Skies', Peter Hudson

21st April 'Time Travel, a beginner's guide', Mark Hurn

19th May 'Ladies of the Night', Ann Bonnel (guest speaker)

16th June 'TBA', Brian Brooks

Members night are held on 7th April, 5th May, 2nd June, 30th June.

More society details on <http://website.lineone.net/~jmbell>

NEWBURY

Meet at the United Reform Church Hall, West Street.

17th Mar - SET Week. Talk at St Bartholomew's School, Newbury
Dr Paul Roche (National Space Science Centre) - Impact!

7th Apr - Prof H Rishbeth (Southampton University)

"The Sun, the Earth and the Northern Lights"

12 May - Dr Allan Chapman (Oxford University and NAAS)

"Sir George B Airy & the Royal Greenwich Observatory"

9th June - AGM

Don Miles (BAA & Webb Society)

"A Circular Argument"

NORWICH A.S

All meetings at the Seething Observatory from 7:30pm to approx 10:30pm. Admission £2, under 16's £1, ample parking.

Situated off the B1332 Norwich - Bungay Road Signposted 8 miles south of Norwich.

B1332 Signpost Seething Observatory, (Harvey Lane): 1 mile down Harvey Lane/Toad Lane.

<http://nas.gurney.org.uk/>

Contact: Frank Lawlor. 01508 493321

E-mail: FLawlor@compuserve.com

24th Mar - Collisions with Earth, Emma Drake

21st April - Hubble and the Next Generation Telescopes, Mark Thompson

SALFORD AS

Contact: Kath Redford 2 Albemarle Road, Swinton, Manchester. M27 5ST Tel: 0161 7943179.

E-mail: salfordac@ast.man.ac.uk

WWW:<http://www.salfordastro.org.uk>

SCOTTISH ASTRONOMERS

Ken Mackay at Hayford House, Cambusbarron, Stirling FK7 9PR .

<http://star-www.st-and.ac.uk/~fv/sag/sag.html>

SHROPSHIRE

Observing meetings are held once a month at Rodington Village Hall, between Shrewsbury and Telford where we have the use of good facilities in an accessible location with a reasonably dark site. Society 6" and 10" Dobsonian reflectors are available for loan to members who can take them home between meetings.

The meetings at the Gateway Arts and Education Centre are held quarterly and attract about 30 people for talks by well known people on the circuit.

Contact: Jacqui Dodds, 35 Marton Drive, Wellington, Telford. TF1 3HC.

E-mail: Jacquidastro@breathemail.net

WebSite: www.astro.cf.ac.uk/sas/sasmain.html

SOLENT

Room 8 of the Oaklands Centre, Fairisle Road, Lordshill, Southampton, 7.30-10pm every third Tuesday of the month.

2000 February 15 Southern Constellations Ken Medway

March 21 Earth Observation from Space Dr Nick Veck

April 18 Mirror Making and Mirror Making Machines

Rob Smith

May 16 Planetary Distances John Stapleton

June 20 Sir Norman Lockyer George Wilkins

July 18 Small bodies of the Solar System, Jerry Workman

Aug 15 T..B..A.

Sep. 19 Searching for Supernovae Ron Arbour

Oct 17 A..G.M.

Nov 21 T..B..A.

Dec.19 Meteors Neil Bone

SOUTHAMPTON AS

Meetings are held on the 2nd Thursday of each month, except August, in Conference Room 3, Civic Centre, Southampton, at 7:30pm.

Informal Club Evenings are held on the 4th Thursday of each month, except December, at members houses.

Contact: John Thompson, 4 Heathfield, Hythe, S'mpton. S045 5BJ

Tel: 01703 842531. e-mail: John.G.Thompson@tesco.net

13th April Short Talks by Members:-

"Solar Filters" by Bill Wakefield.

"Astronomy - beginnings, connections and back to school" by John Glasgow.

"CCD Imaging" by Joe Kaplonek.

11 May "Returned Cometary Samples" by Bob Turner

8 June "Observatories I have Visited" by Mike Maunder

(NB In Committee Room 1, ground floor)

27 July TBA

14 Sept AGM

VECTIS AS

John Smith on 01983 865451 or 27 Forest Road, Winford, Sandown, I.O.W. PO36 0JY.

MEETINGS 7.30pm, fourth Friday of each month except December, NEW VENUE (from January): Newport Parish Church Centre, Town Lane, Newport

92 members and a splendid new Observatory on our little Island.

WOLVERHAMPTON

<http://www.wemfas.atfreeweb.com/was/was.htm>

The meetings take place at Beckminster Church Hall, Birches Barn Road, Wolverhampton, from 7:30 p.m. on alternate Monday evenings.

Contact: Michael Bryce (Secretary) on 01562 742850 or Barbara

Russell on 01902 650168 for programme details.

The Secretary's email is michael_bryce@hotmail.com.

New website at <http://www.wemfas.atfreeweb.com/was/was.htm>,

WORTHING AS

All monthly meetings are held at the Heene Church Rooms, Heene Rd, Worthing @ 7:30pm, 2nd Wednesday of the month.

10th May - Robin Gorman "The Effects of Precession"

Contact: Dave Storey at dave.storey@controls.eurotherm.co.uk

<http://www.worthingastro.freeseve.co.uk>

YORK A.S

We meet on the first and third Friday in each month except August at The University of York Rm. G120, Goodricke College, York at 8pm

Contact Hazel Collett 01423-320012 Mon-Thur. daytime or Martin Dawson 01904-658072 evenings.

If the society your looking for is not listed try the FAS handbook which contains details of all the Societies in the FAS. If your society wishes to be mentioned in the round-up send in your events/change of meeting date/location etc. and I'll endeavour to slot them in.

In newsletter editions which are pushed for space entries which duplicate the handbook or have been published previously may be removed.

LIST OF OFFICERS 1999/2000

President: Pam Spence,

See Front cover for details

Vice President: Malcolm Jones

Tabor House, Norwich Road, Mulbarton, Norwich, Norfolk, NR14 8JT. Tel: 01508 578392
E-mail 100257.1434@compuserve.com

Secretary: Clive Down,

See Front cover for details

Treasurer: Dave Sutton,

See Front cover for details

Membership Sec: Eric Hutton,

29 Paternoster Close, Waltham Abbey, Essex, EN9 3JU
Tel 01992 610243. E-mail: bookman@rmplc.co.uk

Minutes Secretary: Ron Kelley

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E-mail: rpk@ronkelley.demon.co.uk

Editor: Rob Barter

See Front cover for details

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E-mail: daveeagle@observer1.freemove.co.uk

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45 Swinton Crescent, Unsworth, Bury, BL9 8PB
Tel: 0161 7663802 E-mail: pjpubs@btinternet.com

Meetings Organiser

VACANT

Publications Secretary: Malcolm Jones,

See Vice President above

Publicity Officer: John Parrat

73 Woolbarn Lawn, Whiddon Valley, Barnstaple, North
Devon, EX32 8PQ. Tel: 01271 372331
E-mail: john@astro3.freemove.co.uk

Slide Librarian: Alan Drummond

27 York Road, Crawley, West Sussex RH10 5JS
Tel: 01293 535027

Chilterns Group :

VACANT

Devon Group : John Parrat

See Publicity Officer

East Anglia Group :

VACANT

North West Group : Ron Kelley

See Minutes Secretary

SAGAS Rep:

VACANT

West Midlands : Andy Salmon

Olympus Mons, 13, Jacmar Crescent, Smethwick,
WARLEY, West Midlands, B67 7LF. Tel: 0121 5654845
E-mail: Andy_Salmon@compuserve.com

Yorkshire Group : Paul Harper

45, Lydgate, Lepton, HUDDERSFIELD, West York-
shire, HD8 OLT Tel: 01484 606832

Website Co-ordinator: Nick Quinn

15, Newham Lane, STEYNING, West Sussex, BN44 3LR
Tel: 01903 814090 Nick@nquinn.demon.co.uk

FAS Convention 2000

For those of you who plan ahead, next years FAS Convention (and AGM) is on Saturday September 30th 2000 at the Rutherford Appleton Laboratory near Didcot in Oxfordshire. Doors open at 9:00am. Dr Richard Harrison (Rutherford Appleton Laboratory):

“The SOHO Mission”

Dr Bob Owens (National Museum of Wales):

“Kuiper Belt Objects”

Nik Szymanek (Havering AS): “CCD Imaging”

Professor Phil Charles (Oxford): “Towards the Event Horizon”

Professor Mike Edmunds (Cardiff): “Sir Isaac Remembers...”

Trade stands to include:

Astronomy Now

Earth and Sky/Fieldview

David Hinds Ltd

Venturescope

Tickets £4 in advance, £5 on the door.

The restaurant will be open for lunch. This is being run by the RAL.

Look for location map in next edition of the newsletter.

For tickets contact The Treasurer, Dave Sutton

Publications Available

Astrocalender	£1.40 + A5 SAE + 31p stamp
Observational Astronomy	£2.00 + A5 SAE + 31p stamp
Step by Step Astrophotography	£1.30 + A5 SAE + 31p stamp
Using a Telescope	£1.80 + A5 SAE + 31p stamp
Choosing a Telescope or Binoculars	£0.60 + A5 SAE + 26p stamp
Hazards & Safety Guidelines	
FAS Handbook	£3.50 + A5 SAE + 40p stamp

Please state your Society name to qualify for these prices.

Contact Publication Secretary For Details & Bulk Orders

Payment – Cheques payable to F.A.S

MALCOLM JONES, Tabor House, Mulbarton Road

Norwich, Norfolk. NR14 8JT

E-mail: 100257.1434@compuserve.com

Meade LX-10 8” Stolen

On 22/23 January 2000 my Meade 8-inch LX10 De Luxe Schmidt Cassegrain was stolen. If anyone finds an item resembling this scope, please contact either myself or West Hampstead police station in London.

Please look for:

An 8-inch Meade LX-10 De Luxe, with tripod (non-extendable) and wedge.

Without: finder, eyepieces, prism, hand controller (guider), the three screws needed to connect the wedge to the scope, or the cable necessary to connect up the motor drive. (Of course it may be easy to replace some of these items e.g. screws and eyepiece. The current lack of screws means the scope may not be presently attached to the tripod, so a tripod-less scope is also a possibility).

With: (if the thieves have not removed the label) the name ‘Stellar Vision Astronomy Shop, Tucson, Arizona’ as a logo on the tube itself.

R. Warren (telephone 0171 594 9297).

MEMBERSHIP CHANGES

Remember to send society contact changes to the Membership Secretary, Eric Hutton.

Deadline for submission for next newsletter, 23/05/2000.

Please remember to send ALL articles to the Editor, Rob Barter. Regrettably Material can only be returned if supplied with a SAE.