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# FEDERATION OF ASTRONOMICAL SOCIETIES

ISSUE 55

## Leonids 1998

Alongside such events as the 1985/86 return of Halley's Comet, and next year's total solar eclipse in SW England, the expected return, in strength, of the Leonid meteor shower in 1998 and/or 1999 has long occupied a prominent position on the 'wish list' of many amateur astronomers. Not least, those of us who observe meteors regularly have waited patiently over the years to see if we will have the chance to emulate the fabled observations made from the western United States on 1966 November 17, when a veritable storm, with estimated rates of 140,000 Leonids/hr, occurred during a 40 minute interval. The Leonids, produced by debris from Comet 55P/Tempel-Tuttle are present every year, though usually at rates which interest only dedicated meteor observers - perhaps 5-8/hr in an 'average' year, as between 1981 and 1993, say. Higher activity is seen in the years around the perihelion of the parent comet, which returns at intervals of about 33 years - bringing with it an enriched cloud of recently-shed material. The 1966 display was the best of several, spanning a period of about 10 years, during which Leonid activity was markedly high.

55P/Tempel-Tuttle made its most recent perihelion return at the end of February, and careful observations have revealed the Leonids stepping up in intensity since 1994. A particularly well-covered return in 1995 (under cold, clear frosty skies in the British Isles) indicated an early-morning peak at corrected Zenithal Hourly Rate 40 on Nov 17-18 (about 2-3 times the normal quiet-time level). In 1996 and 1997, the peak broadened into a plateau of 12-14 hours, during which Leonid activity was as good as that normally seen from August's Perseids - a clear indication that the debris cloud was back in the inner solar system.



The enhanced rates of recent years have engendered numerous forecasts as to the likely behaviour of the Leonids in 1998 and 1999. In either year, it was widely thought, a storm might occur - though not as intense as that of 1966, since the stream does not pass quite so close to Earth at this return. Forecasting the time of the most intense activity has been largely a case of guesswork in the past few years, though the confidence with which many predictions have emerged via the media might lead one to think otherwise! We went into the 1998 return still uncertain as to when the highest Leonid activity would come, and just how intense it might be.

The media certainly took the event to its heart, with a great deal of wild speculation being presented as established fact along the way. Confident forecasts were made for a peak around the time of closest approach to the meteor stream on the evening of Tuesday Nov 17-18., with Asian longitudes being most favoured. Some observers, following the well-beaten path of those who chase eclipses, took off to the Far East in the hope of finding clear skies and storm rates. Those of us left behind waited and watched the clouds patiently, hoping for a clearance as we last had for the Leonids in 1995. In the end, the shower panned out rather better than any of us in the UK might have dreamed!

UK observers contributing to the BAA Meteor Section appear to have enjoyed their best conditions and Leonid rates in the pre-dawn of 1998 November 16-17, with high activity in evidence from at least 01h UT, as reported by Dave Eagle in Bedford. Several observers in the Midlands, saw a very bright Leonid around 1215 UT, and numerous spectacular event, many with persistent trains, followed through the rest of the night. While patchy cloud was always a nuisance, rates of at least 80 Leonids/hr were reported from 03-06h UT, up to daybreak, by experienced observers including Dave Strachan, George Spalding, Ian Gray, Tony Markham, Paul Yates. My own results, in rough summary, are given below, and are fairly typical:

In Chichester, West Sussex, we had cloud early on (midnight UT), but I woke after a couple of hours' fitful sleep at 3.30am, to find clearing skies and, coincidentally, a power cut (conveniently obviating the problems of neighbours' lights!) As often the case in mid-November from the UK, patchy cloud coming and going was the main problem. There were, however, several long clear spells, allowing a good view of what I would rate as the best meteor spectacle I have witnessed in 27 years of observing! On setting foot outdoors - into a frosty morning! - it was instantly apparent that something unusual was in progress, with bright-Leonids appearing every 20 seconds or so.

### Formal watch figures:

0345-0350 (5mins!) LM 6.0 12 Leonids

0359-0425 (26min) LM 6.0 Cloud 10% 48 Leonids,  
1 Sporadic

0425-0437: Break due to cloud - during which 20  
Leonids were seen, including 5 in a burst of <  
5 seconds, among them a sky-illuminating  
fireball at 0429!

0437-0500 (23mins) LM 5.5, some cloud 38 Leonids,  
2 Sporadics

0500-0600 (1Hr) LM 5.9 82 Leonids, 2 Sporadics,  
1 S Taurid

0600-0605 LM 5.0 6 Leonids

At 0459 UT, a mag -8 (?) Leonid appeared very close to the radiant, leaving an intense train, which remained visible for at least 18 minutes, as it first expanded into a "doughnut", then spread out and drifted eastwards across Leo. Many observers have reported this, and other spectacular events. The display was notable for the abundance of bright meteors, with comparatively few faint Leonids in evidence.

Several more reports of the 0459 event have been received, including sightings by Bob Mizon (Dorset) and Ian Gray (Worcs.). The above provisional report was compiled in haste shortly after making the observations. In time, as more results come to hand, a more authoritative picture will emerge. Activity was so intense at times that it was difficult for even experienced observers to keep track of all that was going on. In particular, it has been noted by several that it was hard to keep counting persistent train durations in seconds, whilst also memorising details of successive meteors for recording on standard reports.

By contrast, conditions proved disappointing on Nov 17-18, with fog and cloud restricting observations. Few reports, and none indicating particularly high activity, have thus far been received for this night. Apparently the Explorers Tours group in India saw rates of about 40 Leonids/hr around the time of node-passage - so no storm at the expected time. Indeed, it is tempting to speculate that the Leonids peaked much earlier than anyone anticipated in 1998! Obviously, caution must be exercised at this early juncture in interpreting the data, but it does seem unusual that activity was so high almost 14 hours ahead of node-passage, and the anticipated storm or grand display. It will be interesting to learn what was seen in the western US, and Asia in due course, assuming anyone in those locations attempted systematic observations.

Without question, the 1998 Leonids were very much enhanced; we had no "poor" display to compare with those which so disappointed our predecessors in 1899 or 1933; 1998 Nov 16-17 looks like going down in memory as one of the real 'greats'! of UK amateur observing, alongside the SL9 impacts, the 1989 March aurora, and other short-timespan spectaculars.

Neil Bone ( Director, BAA Meteor Section)

### StarWatch UK

StarWatch UK was set up in 1995 as an extension to the Japanese and American light pollution monitoring programmes. The main collaborators behind the UK programme were Margaret Penston (Royal Astronomical Society and the RGO at Cambridge), Barrie Jones (the Open University), Derek McNally (University College London and the Association for Astronomy Education) and Pam Spence (Federation of Astronomical Societies).

The programme was launched at the 1995 FAS Cambridge Convention and publicised through both the FAS and Astronomy Now.

Many people sent in their observations, but unfortunately, very little data reduction has been able to be done. With the demise of the RGO, there is also now no obvious central address to collate observations.

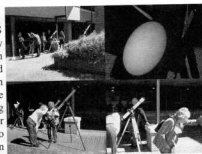
Discussions are ongoing to try and find some organisation willing to undertake the project. Until this has been sorted out, however, the FAS advises observers not to send in further observations to the RGO.

Pam Spence  
Vice President, FAS

## CARDIFF AS At The BA Festival Of Science

The British Association annual Festival of Science took place this year at Cardiff University between 7<sup>th</sup> to 11<sup>th</sup> September. With the excitement building for the eagerly awaited eclipse, the theme of the astronomy programme was the Sun and the day the Sun 'goes out'.

Cardiff AS participated by setting up an exhibition and information display about the Sun and providing an opportunity for delegates to observe the Sun SAFELY. The



weather was kinder than forecast and members were kept busy for the 3 days of the solar observing demonstrations. A steady stream of visitors saw an interesting group of sunspots via projection and safe filter. Members enjoyed meeting and chatting to delegates who seemed to have travelled from all over the UK. The furthest from home though was Li Bing from the Hai Dian Science Centre in Beijing, China!! We were able to help her with information from the FAS Handbook from which she took copious notes and asked many questions about the FAS itself. So look out for a Far Eastern group next!!!

Theresa Cooper

With the closure of the RGO, Cambridge, the state of astronomy as a whole in the UK has been left without a home. Astronomy in the UK has needed a central point of contact for many years. There are so many splinter organisations dealing with various aspects of astronomy - and dealing very well - but the community has desperately needed an umbrella 'head office' to help co-ordinate astronomy as a whole.

Hopefully, the problem has been solved.

With the dissemination of the RGO, the 'RGO' name has been looking for a home. Many astronomers have fought to keep the name in existence, and it is looking hopeful that the RGO will return to where it was born: to the Royal Observatory, Greenwich.

The astronomy information service run by the RGO at Cambridge has been moving to Greenwich. The service will be headed by a professional front line astronomer who has direct access to the astronomy expertise in the universities and the new Astronomy Technology Centre, Edinburgh. The service, supported by PPARC, will be accessible via telephone, fax, e-mail and the world wide web. It will be fully operational in November.

In addition, the Old Royal Observatory will expand its current exhibitions to include new galleries, events and activities to promote modern astronomy and the role of UK scientists in astronomical research. The historic and rare scientific artefacts held at the Royal Greenwich Observatory in Cambridge have already been transferred to the Old Royal Observatory. Many of these, which originally came from Greenwich, will be on display in the new and existing galleries. The first visitor attraction, a new modern astronomy gallery, is scheduled to open in late November.

**Pam Spence**

## Liverpool Astronomical Society

The society have recently hosted a visit from a group of astronomers representing the six North East of England astronomical societies. Arriving at 12:00 noon the visitors were shown several attractions including the NMGML Liverpool Museum Planetarium, the City Observatory hosting the 5inch Cooke telescope. On from there the visitors were shown the replica of William Lassell's 24inch telescope, built in 1996 to celebrate the 150th anniversary of Lassell's discovery of Neptune.

A final coach trip to the Pex Hill observatory housing the 16inch newtonian also included a demonstration of David Galvin's 'live' collection of weather satellite images. Thus concluding the visit which everyone considered a good day.



A formal visit to the Godlee Observatory by the Lord and Lady Mayoress of the City of Manchester on July the twenty-third provided a good augury for the Society's promotion of the new season which opened with NWGAS's Astroday at Sashas Hotel on the third of October when Dr David W. Hughes, Chris Trayner and Dr. Allan Chapman gripped with their enthusiasm the flood of delegates who, thanks to Tony Cross's planning management skills, had the bonus of selected points of sales to attract their banking-smart cards or wallets.

A penetrating insight into the potentials of the developing science of high energy gamma ray astronomy was provided by the amateur friendly Dr. Jeremy Lloyd-Evans on his visit to the MAS on October the fifteenth when there was an audience peak.

The demands for copies of the special issue copyrighted CD ROM, devised by Mike Oates, also our web comptroller par excellence, of our 'Atlas Celeste', in its specially designed presentation case, still continues to climb. No discerning astronomer should be without this CD ROM which would also be a fine gift to anyone seeking to extend his or her horizons as well as on any appropriate occasions.

Our President, Ray Brierley, and our astrohistory-researcher, Kevin J. Kilburn, have liaised to further the cyclical programme focussed on widening membership's familiarisation with the night sky.

For full details of our vast range of activities, browse regularly our well illustrated website: <http://www.u-net.com/ph/mas/>

**J.H.W Davidson**

## The UNIVERSE Revealed

**Book Review by Ken Sheldon**

General Editor: Pam Spence  
Published by Mitchell Beazley  
ISBN 1 84000 065 1

**HARD LUCK JENNY** - what a strange way to start a review you might think, but I'm sure you will understand that in a moment.

When I skimmed through a copy very quickly at Cambridge my immediate reaction was that here was the ideal book for my 7-year old grand-niece Jenny. This was based on Jenny having looked at the Moon through our 'scope and exclaiming "The Moon has pimples. I want to be a Space scientist!". I thought that the images in the book would help fix that idea in her mind.

Well last week I bought the book. Unfortunately this ruined Jenny's Christmas present - this book stays firmly on MY desk. As I thought, the book is full of wonderful images but it also is full of excellent write-ups on every imaginable topic. It starts with the Solar System - its origin and its composition. That is fantastic but it goes on to the Stars - their origin and life cycles, then to the Galaxies. It covers these in great depth and with lots of pictures. Then Cosmology - Why, Where and When are covered. This is a book that I need, hard luck Jenny, maybe next year!

Maybe you need to look, and having looked to prod someone to give you one for Christmas.



**ASTRA:** Association in Scotland to Research Astronautics  
Contact Mr George McCue, 96, Bloomfield Road, Airdrie, Lanarkshire, ML6 9LX Tel: 01236 750903.  
Meets Friday evenings at Airdrie Observatory and monthly in Glasgow.  
<http://easynet.co.uk/~portwin/Pages/ASTRA/General/ASTRA.html>

E-mail: [astra@easynet.co.uk](mailto:astra@easynet.co.uk)

## **AYLESBURY**

Contact: Peter Biswell on 01296 485125

## **BEDFORD**

Secretary: Lisa Harrington, 24 Swallowfield, Wyboston, Beds. MK44 3AE Tel. 01480 406350  
<http://www.btinternet.com/~cosmodave/bashome.html>  
E Mail contact (Dave Eagle): [cosmodave@btinternet.com](mailto:cosmodave@btinternet.com)  
<http://www.powernet.co.uk/bas/bashome.html>

## **BIRMINGHAM** Dane Carty 0121 353 6577

**BOSTON AS** Details of the 98/99 lecture programme are available from Mrs Lorraine Money, 18 College Park, Horncastle, Lincolnshire. LN9 6RE. 01507-524037 (ansaphone), or e-mail [Lorraine@astspace.demon.co.uk](mailto:Lorraine@astspace.demon.co.uk) or [Paul@astspace.demon.co.uk](mailto:Paul@astspace.demon.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](mailto:has@andybat.demon.co.uk)

## **BRIDGEND**

Meets on alternate Fridays between Sept & June.  
Clive Down 01656 740754  
E-mail [clivedown@btinternet.com](mailto:clivedown@btinternet.com)  
<http://members.aol.com/BridgendAS/>

## **BRISTOL**

Our season begins on October 9th at Bristol University Physics Building and we alternate Fridays there with Fridays at Westbury Park Methodist church rooms for club nights.  
Details can be obtained from me on 01454 632692 or at this email address. E-Mail: [John.Pickard@bristol.ac.uk](mailto:John.Pickard@bristol.ac.uk)

## **CAMBRIDGE AA and YOUNG ASTRONOMERS**

Stanley Stafford (01223) 880624  
<http://www.ast.cam.ac.uk/caa/caahome.html>

## **CASTLE POINT** Andy Turner 01702 258640

The Castle Point Astronomy Club now has a website.  
<http://www.djmurphy.demon.co.uk/cpac>

**CHESTERFIELD-** Robert McGregor, 34 Higher Albert Street, Chesterfield, Derbyshire, S41 7QE

## **CORNWALL A.S.**

Contact: Jill McGroarty 31, Godolphin Rd. Helston, Cornwall, TR13 8PX  
Tel: (01326) 564996 E-mail: [thomas.mcgroarty@virgin.net](mailto:thomas.mcgroarty@virgin.net)

**CRAWLEY AS** Ron Garner, 1 Pevensey Close, Pound Hill, Crawley, West Sussex, RH10 7BL. Tel: 01293 531096.

## **CRAYFORD MANOR HOUSE ASTRONOMICAL SOCIETY**

**EASTBOURNE** Peter Gill, on 01323 646853

Dec 12 "Aspects of the sun" - Pam Spence

Jan 9 "Members Evening"

Feb 6 "The finest Deep Sky Objects" - Alan Dowdell

Mar 6 "Life in the Universe" - Dr Stuart Clarke

Apr 10 "The Development of Amateur Astronomy 1949-99" - Kevin Johnson

**LA SOCIÉTÉ GUERNESIAISE** Geoff Falla the Hon. Secretary on Guernsey 724101  
<http://dspace.dial.pipex.com/town/estate/vs76/astrosec.htm>

## **GWYNEDD ASTRONOMICAL ASSOCIATION**

Contact: Davyth Fear Brwynog, Ffordd yr Orsaf, Llanrug, Gwynedd LL55 4AG Tel. (01286) 672882  
e-mail [fear@enterprise.net](mailto:fear@enterprise.net)

Meetings are held on the first Thursday of every month at the Electrical Engineering Building, University of Bangor, at 7.30  
**HAMPSHIRE** Geoff Mann on 01705 596154

## **AS of HARINGEY**

Contact: Jerry Workman, 91 Greenslade Rd, Barking, Essex, IG11 9XF. Phone 0181 5077568  
<http://www.garym.demon.co.uk/index.htm>

**HINCKLEY & DISTRICT** Shaun Albrighton, 4 Walnut Close, Hartshill, Nuneaton CV10 0HX (01203 397183).

## **HEART OF ENGLAND ASTRONOMICAL SOCIETY (HOEAS)**

Contact: The Secretary, Keith Middleton, 33 Digby Drive, Marston Green, Solihull, B37 7DU.  
Email: [HOEAS@yahoo.com](mailto:HOEAS@yahoo.com)

Formal meetings held on the last Thursday of the month at Furnace End Village, Shustoke, Warwickshire.

Nov 26 "The Eye and the Art of Observing" Sean Albrighton

Jan 28 "Eruptive & Cataclysmic Binaries" - Gary Poyner

Feb 25 TBA - Nick Hewitt

Mar 25 Quiz Night

Apr 29 "The Moon: Galileo to Lunar Prospector" - Peter Grego

May 27 "2001-The Reality: Spaceflight in the new millennium" - Keith Middleton.

## **HUDDERSFIELD ASTRONOMICAL & PHILOSOPHICAL SOCIETY** - contact Robert Williams 01484-537032

Except where indicated meetings are at 4A, Railway Street, Huddersfield.

**ILKESTON & DISTRICT** Mark Thomas on 0115 939 8133 or John Brown on 0177 376 8836.

**IRISH AS** Stephen Ryan at PO Box 2547, Dublin 11 or Tel: (from the UK) 00 3531 864 1382

## **LEICESTER AS**

A new venue as from this month. Meeting at Braunston Civic Centre, Leicester

Details: Ann Bonell, 53 Warden's Walk, Leicester Forest East, Leics. LE3 3G0 Tel. 0116 2394481

<http://www.thenet.co.uk/~obiwan/astro/index.html>

## **LETCHEWORTH**

Meet on the last Wed of each Month

Contact: Eric Hutton 01462 626032 . [bookman@rmplc.co.uk](mailto:bookman@rmplc.co.uk)

<http://www.rmplc.co.uk/eduweb/sites/bookman/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](mailto:ggastro@liverpool.ac.uk)

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

Jan 15 "Cosmology" - Mr Chris Jordan

Feb 19 "CCD Astronomy" - Mr David Ratledge

Mar 19 "Mars: The Next Generation" - Mr Paul Money

## **LOUGHTON ASTRONOMICAL SOCIETY**

The new venue is at Theydon Bois Scout Hall, Loughton

Lane, Leydon, Paisley, Epping, Essex.  
 Meetings every Thursday at 8:00pm.  
 Contact Charles Munton. 14a Manor Road, Wood Green,  
 London N22 4YJ  
 0181 889 9253, charles@munton.u-net.com  
**MACCLESFIELD AS**  
 Contact Cherry Moss 01625 611789  
 Jan 5 Dr Allan Chapman  
 Feb 2 "Observing Active Galaxies with the Issac Newton  
 Telescope" - Dr Anthony Holloway  
 Mar 2 "The Liverpool Telescope Project" - Professor Mike Bode  
**MANCHESTER AS**

MAS. c/o Godlee Observatory, UMIST, Sackville St, Manchester.  
 M60 1QD  
 (0161 2004977, 24hrs. Fax 0161 2287040).  
<http://www.u-net.com/ph/mas/>

**MANSFIELD AND SUTTON**  
 Graham Shepherd on 01623 552276  
<http://www.innotts.co.uk/~shepherd/index.html>

**MEXBOROUGH & SWINTON** Mark Benton 01709 587887 or e  
 mail  
[Mark.benton@rotherham.gov.uk](mailto:Mark.benton@rotherham.gov.uk)

**MILTON KEYNES** Pierre Girard on 01234 391489 or  
[pgirard@compuserve.com](mailto:pgirard@compuserve.com)

**NORTH EAST LONDON** Stephen Karpel, 99 Churchfield Road,  
 ACTON, London. W3 6AH Tel: 0181 992 5751

**NORWICH** Malcolm Jones 01508 578392

**NOTTINGHAM** Carl Brennan on 0115 938 4521.

**ORWELL**  
 Peter Richards on 01473 659806 [oasienq@btbcs.bt.co.uk](mailto:oasienq@btbcs.bt.co.uk)  
<http://www.ast.cam.ac.uk:80/~ipswich/>

**PAPWORTH**  
 Meets on the 1st Wed of each month (except July) from 7:00pm to  
 9:00pm in the Bradbury Progression Centre, Papworth Everard, near  
 Huntingdon.  
 Keith Tritton on 01767 677219 (even) [kpt2@tutor.open.ac.uk](mailto:kpt2@tutor.open.ac.uk)

**PONLAF** The Astronomy Forum at the Univ. of North London.  
 Ponlaf held monthly meetings (last Fri in month) in term-time, when  
 an invited speaker talks on a subject of Astronomical interest.  
 Pat Prigmore, 0171 753 5126

**RENFREWSHIRE ASTRONOMICAL SOCIETY**  
 Meetings are held every Friday evening at 7.30 pm at the  
 COATS OBSERVATORY, PAISLEY.

Contact: Mark Pollock TelNo: 0141 561 3554  
 Or e-mail Ian Martin at [Inmartin@aol.com](mailto:Inmartin@aol.com)

**SALFORD AS**  
 Following on from the report in the Autumn FAS newsletter, in the  
 2nd half of the winter session (Jan to Mar 99 inclusive), the society  
 looks forward to another seven lectures, to be given by 5 guests and  
 2 member speakers.

This includes...January 27th, Dr Hugo Allyn on the University of  
 Sheffield, talking on "Star Trek - is it possible", and on February  
 10th, Dr John Baruch from the University of Bradford, on "Robotic  
 Telescope-New Era in Astronomy".  
 The lectures take place in room 535, level 5, The Maxwell Building,  
 University of Salford, The Crescent, Salford - at 7:30pm. Visitors  
 Welcome.

The society always has a full winter programme. Interspersed with  
 the lectures are other items, resulting in some event taking place  
 every Wednesday during the session, either at the University or at  
 The Salford Observatory, Chaseley Field, Chaseley Road, Salford.  
 We also produce a quarterly newsletter and an annual magazine -  
 "The Salford Astronomer".

Plans to join the great trek to Devon and Cornwall for the big event on  
 August 11th 99 are well in hand.  
 Further Details: Phone or send a SAE to Kath Redford (see below)  
 Kath Redford 2 Albarle Road, Swinton, Manchester. M27 5ST  
 Tel: 0161 7943179.  
 E-mail: [salford@ast.man.ac.uk](mailto:salford@ast.man.ac.uk)  
[WWW/http://asp2.ast.man.ac.uk:8000/~salfordac/sasholme.htm](http://WWW/http://asp2.ast.man.ac.uk:8000/~salfordac/sasholme.htm)  
**SAWTRY & DISTRICT** Brooke Norton on 01487 831683.

**SCOTTISH ASTRONOMERS**  
*[Produce a wonderful Magazine every quarter - FAS Ed.]*  
 Ken Mackay at Hayford House, Cambusharron, Stirling FK7 9PR  
<http://star-www.st-and.ac.uk/~fv/sag/sag.html>

**SHEFFIELD ASTRONOMICAL SOCIETY**  
 The SAS are now on an active hunt for their own meeting  
 room in a dark sky location. They have successfully met in a  
 university lecture theatre for many years but now feel that a  
 more informal atmosphere would increase membership. If a  
 suitable location is found, the superb 12 1/2 inch 'Cox'  
 telescope, currently in their moth-balled observatory, would  
 be moved and revived to add an active observing element to  
 their retinue of activities.  
 Keep up with progress by looking at  
<http://www.saqqara.demon.co.uk/sas/sashome.htm>

**SHROPSHIRE** David Woodward on 01743 872991 of the  
 Programme Secretary John Chidlow on 01743 249823 for details on  
 forthcoming events.

**SOLENT AS** Ken Medway on 01703 582204.

**SOUTH EAST KENT** John Kemp on 01227 766470

**STAFFORD & DISTRICT A.S.**  
 Meet on the 1st & 3rd Thursday of each month from September to  
 August at 7:15pm at Weston Road School, Blackheath Lane,  
 Stafford.  
 Contact Lydia Hodgkinson at 6 Elm Walk, Penkridge, Staffs. ST19  
 5NL. Tel: 01785 712065

**STRATFORD upon AVON** Robin Swinbourne, 18 Old Milverton,  
 Leamington Spa, CV32 6SA. Tel: 01926 882187

**SUNDERLAND** Don Simpson, 0191 5670151

**SWANSEA** Mrs Sandra Stewart  
 Email [sandra@moonmoths.demon.co.uk](mailto:sandra@moonmoths.demon.co.uk)  
<http://www.swan.ac.uk/astra/starpag.htm>

**TORRAB A.S**  
 Secretary Tim Moffat (01626) 361041)  
 Meetings at Torquay Town Hall:-  
 Dec 17th "A Victorian Slide show" - Tim Sedgewick  
 Jan 21st "It's all done without mirrors" - Steve Duncan  
 Feb 18th "MPEGs" in space. - Dave Norman  
 Mar 18th X-Ray Binaries, Amateurs and Professionals" (Dr Paul  
 Roche)

Contact: TAS@halien.net  
 Web: <http://www.halien.com/TAS/>  
**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,  
 VENUE Lord Louis Library Meeting Room, Orchard Street,  
 Newport.

**WALSALL**  
 WALSALL AS goes from strength to strength, meetings every  
 Thursday at the Free Trade Inn, Wood Lane, Pelsall.  
 For details of monthly lectures and astro diary phone Alan Ledbury  
 on 01922 632 624  
<http://www.kew5.cableinet.co.uk/G.Ledbury/WASINDEX.HTM>

**WEST CORNWALL** Mr. Robin Hughes  
 93 Atlantic Way, Porthowan, Cornwall TR4-8AH. 01209 890736

**WEST YORKS** Ken Willoughby, 11 Hardistry Drive, Pontefract, West Yorkshire, WF8 4BU on 01977 795535 Email Terry Cymbalisty on terry@ndl.co.uk <http://staff.ndl.co.uk/terry/wyas>

**WILLIAM HERSCHEL SOCIETY**

Al Crotcher on 01225 311342 or 19 New Kings Street, Bath, BA1 2BL

**WILTSHIRE ASTRONOMICAL SOCIETY**

Simon Barnes, 88 Oakfield Road, FROME, BA11 4JH  
E-mail: [simon@rohrmann.freemove.co.uk](mailto:simon@rohrmann.freemove.co.uk)

**WOLVERHAMPTON**

Michael Bryce, at Iona, 16 Yellowhammer Court, Kidderminster, Worcestershire, DY10 4RR; Tel: 01562 863545;

[michael\\_bryce@hotmail.com](mailto:michael_bryce@hotmail.com)

<http://members.wbs.net/homepages/w/e/m/wemfas/index.htm>

**1999 Programme**

11 January; Michael Bryce; Quiz Night

25 January; Steve Evans; Multiple Station Meteor Photography

08 February; Dr John Cooper (Wolverhampton Science Park);

Jodrell Bank (1964 -- 1968)

22 February; Frank Barretto; Doomsday Rogues of the Deep Sky part 3

08 March; Slide Evening

22 March; Andy Salmon; The Soviet Space Programme

12 April; Malcolm Astley; Title to be announced

14 June; Michael Bryce and Simon Barnett; A guide to the Total Solar Eclipse

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Meetings are held on the second Thursday of each month 8 to 10 pm at Worcester College of Higher Education, Henwick Grove, Worcester Alternative Contact Mr C.Livingston, 14 Ellsdon Rise, Kempsey, WORCS. (01905) 821360

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**CENTRAL SIDEWALK**

Stuart Williams 26 Matlock Road, Walsall, West Midlands, WS3 3QD.

Larger articles from societies may be found elsewhere in this newsletter. If you have sent in an article but don't see it in this issue, don't despair. Due to space restrictions I may be holding it back for the next issue.

## Post-Eclipse meeting

The **Cornwall Astronomy Society** would like to announce a post-Eclipse meeting on 12th August 1999 at The Godolphin Club, Wendron, St. Helston, Cornwall at 7.30 p.m. and we extend a warm welcome to members of any other societies who are in the area at the time (traffic permitting, of course!) If anyone would like to come along, it would be a great help to know in advance, as far as possible, as I have to sign in non-members of The Godolphin Club.

For anyone still requiring accommodation during Eclipse week, I hope to have a list of approved private camping sites available as soon as the local providers' hotline issues the information. **See you all there!**

**Jill McGroarty** (see Society Roundup for Phone number and address).

## "Living in Space" Book Review by Nick Quinn

G. Harry Stine

published by M. Evans and Company Inc.

distributed by Gazelle Book Services Ltd.

ISBN 0-87131-841-5. 248 pages, price £16.99.

"We are the first species with the ability to leave Planet Earth and expand the horizons of existence into the infinite realm of the Universe." Subtitled "A Handbook for Work & Exploration Stations beyond the Earth's atmosphere", this book considers all the issues involved with human beings colonising space. The author has served as a member of NASA's Technology and Commercialization Advisory Committee and is well-qualified to write about all aspects of the subject.

Stine develops his thesis logically, starting by defining a human being, and then moving on to detail the requirements necessary to keep us alive on Earth. For example, atmosphere, body temperature regulation, acceleration and radiation tolerances. He then goes on to suggest how these requirements may be realised in space habitats.

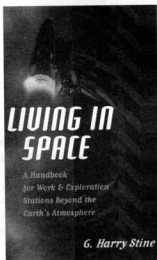
Other chapters cover "Weightlessness", "Nutrition and Sanitation", "Working in Space", "Designing for Human Beings", "Recreation in Space", "Health and Medicine in Space", "Space Complexes" and "Social Aspects of Space Living".

The book contains much original artwork to illustrate various topics, and also some photographs and diagrams from other sources (principally NASA). One or two of the latter are a bit dark and the detail has been lost in the printing.

Being an American book means that most units of measure are Imperial, which now seems strangely odd to the British reader. In one or two places metric measurements are used, although some of these are 'CGS' rather than the SI standard of 'MKS'. However, this and other Americanisms (railroad for example.) do not detract too much from the book.

How can we work in space? What will we do for recreation? How do we address social issues? These questions are answered in the book in a thorough and convincing manner.

For those with an interest in the detail of how mankind will advance into space, this book may be recommended. It would be a useful book to have in a Society library, and will not 'date' because, as the author states, "...it's about Homo Sapiens Mark one Mod one Version 1.0, an organism that hasn't changed for about a million years or so."



The day began very much earlier than is normal, for us at least, as we needed to leave home at about 6.00 to give us time to have a cuppa on the way and to get to the Cavendish Laboratory, opposite the RGO, just after 9 o'clock. That sort of hour is totally unknown in the Sheldon household since we are night birds - after all it is difficult to do anything astronomical other than solar observing and a bit of meteor scatter in daylight.

Anyway an uneventful journey got us to the labs at 9.10 and we walked in to be greeted as prodigals - after seventeen years of being involved it was nice to be able to look around and see what was there and to have time to natter to old friends and colleagues. We met up with our niece and her husband who have become Cambridge addicts in the last five years and who enjoy the talks although not active astronomers.

Eventually we were summoned into the 300 seat lecture theatre which was fairly full of excited visitors all busy remaking old friendships. Smack on time, Alan Dowdell the FAS president, opened the meeting. After the normal routine of fire exits etc Alan introduced the first speaker Paul Murdin. Most regular Cambridge attendees will have heard Paul speak and will know that he does a great talk. Alan's introduction included a reference to the fact that Paul needed to be on first as he was catching a plane that afternoon to Beijing for an important astronomy meeting. The title of the talk was "The Cosmic History of Water" in which he talked about the progression from the Big Bang through the creation of the various elements up to the appearance of the solar system. His story was well illustrated with lots of wonderful shots from the various high tech telescopes with which he has associations. It was great beginning to a good day.

A quick break for coffee and then onto our second speaker Duncan Copp. Duncan is a vulcanologist who also needed to be on early since he too was going to fly. This time to Hawaii that evening - not for holiday but for work. His talk was on a topic which until Voyager flew past Io was not considered to be astronomical. Called "The work of Vulcan in the Solar System" it dealt in some detail on the processes of volcanos, what could cause them and their effects.

Although his work and the theme of his talk is volcanoes in space, he gave us some magnificent views of volcanos on Earth and had samples of the two common types of lava, pahoehoe and aa-aa which surprised people with their weight and roughness. He didn't forget the extraterrestrial stuff though and he had some great shots of Venusian, Martian and Ioian (?) sites to make his point about the importance of Vulcan in the Solar System. An excellent end to the morning and some things to think about.

Chris and I ate our lunch quickly since we wanted to make a pilgrimage. We walked across the road and up to the RGO! The establishment which was still open then - but is now closed - looked rather sad on a dull October afternoon. We looked at it feeling very maudlin, over the years we have had good times at all the sites and it seemed rather like the end of

something good. While we were wiping the tears from our eyes (figuratively speaking!) Chris Baddley from the Worcester society drove up and took a couple slides of the building and one of Chris and I standing by the sign. So we have a memento of the occasion or will have when Chris B gets the slides processed.

Another quick look around the trade stands and then the afternoon session began. First up was Steve Bell from the Nautical Almanac Office (still in existence because it works with the US Naval Almanac Office). Steve talked about eclipses and their cycles with emphasis on the 1999 one. His explanation about the determination of eclipse tracks shed some light on some of the differences in track width and precision. He surprised everyone by saying that Fred Espenak's calculations from the NASAS office were tighter than the RGO/US Navy predictions. The RGO predictions are OK for the centre line but the width of Espenak's track is rather narrower and probably more

correct!!! Listening to the talk brought home the immediacy of something which for me has always been a long time away and suddenly - it's here. Nice one, Steve A quick cuppa and our next speaker was ready to go. Dr Nial Tanvir. Is a familiar speaker for SUAAS members. The title of his talk sounded familiar "The Cosmological Distance Scale and the Age of the Universe" but as we might have guessed it was a totally new presentation - lots of what he has told us but with some very new material and some new ideas. Always interesting and enthusiastic he got us all on the edge of our seats with the latest thinking on his topic. Brilliant as always at the end of his talk he left a buzz of conversation in the room as we waited for the finale. The last talk of the afternoon was Neil Bone who talked about "The Leonids - A Storm Coming".

Neil took the opportunity to remind us about aurorae (his other great theme) which he said should be starting to become a little more frequent in the run up to Solar Maximum. He then went on to talk about the probability of the Draconids being a storm. Low probability Neil said - a statement proved by events to be true. He then spent some time showing us that the Leonids are a better bet but still not anything like 100% certain. His assessment "Look but don't predict". Do look though! Neil's interesting and thought provoking talk brought to an end a very good and full day. Alan Dowdell thanked the participants and FAS officers with particular thanks to Pam Spence who had organised the event. During the afternoon the Eric Zucker Trophy was awarded to Brian Lister of CAA - well deserved I think having read of his exploits in the Cambridge magazine.

The Churchill Inn which is the place that we normally retire to say our farewells is being converted into a MacDonalds so we set off home with another tear in our eyes - two sad events in such a brilliant day what a shame.

Home at about 10 (we had a meal on the way back) we felt that it had been worth the drive. Roll on next year.

**Ken Sheldon**

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Stout white fibreglass tube matt black inside. Length 62", interior diameter 12½", exterior diameter 13", suitable for a 10" reflector. £20

National Geographic Society all sky map 1963, framed. Offers please.

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14" diameter single mirror blank. Offers please.

This item is a glass porthole taken from the wreck of the Olympic on Goodwin sands, sunk during the First World War, and a sister ship to the Titanic.

### ASTROFEST

February 12th - 13th 1999  
Kensington Town Hall  
Hornton Street  
London

It's that time of year again and the FAS will again have a stand in the exhibition area. So come along and meet the people running your Federation.

Highlights of the conference include the two NASA speakers Fred Espenak (eclipse expert) and Chris McKay (terra forming researcher)

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The newsletter has a circulation over 4000 to a specialised readership.

Contact the Editor for details.

### MEMBERSHIP CHANGES

Remember to send society contact changes to the Membership Secretary, Eric Hutton, 14 Folly Close, Hitchin, Herts, SG4 9DG. Tel: 01462 626032  
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### Deadline for submission for next newsletter - 15<sup>th</sup> Feb 98.

Please remember to send ALL articles to the NEW EDITOR, Rob Barter.