ANNNUAR GENERAL MEETING AND CONVENTION

Member societies are invited to attend the FAS Annual General Meeting at the Herbert Lecture Theatre in the centre of Coventry at 11.30am on Saturday May 6. This is the usual venue and can be found as part of the city Museum and Art Gallery immediately to the south of Coventry Cathedral. By road, it is best approached from the ring road on its eastern section at the junction with the A6 Leicester to Coventry road.

Lunch can be taken at any of a number of “watering places” before the afternoon session at 2.00pm.

Instead of the usual competitions for artists and photographers, member societies are asked to bring along their entries to the SPACEPRINTS COMPETITION as advertised in advance. Please give FAS secretary Chris Sheldon advance warning of your entries. In addition to the judging and announcing of results, an afternoons lecture is arranged, as follows:

John Fletcher: “Astrophotography”
Bernard Abrams: “Supernovae”
Norman Walker: “Collaboration between amateurs and professionals in astronomy”

The meeting closes at 6.00pm.

Please book your seats as soon as possible by writing to the treasurer, Ken Marcus with your money. Attendance costs £2.50 per person to include coffee etc.

1989 ANNUAL GENERAL MEETING

AGENDA
1. To approve the Minutes of the 1988 AGM.
3. To hear the Treasurer's report.
4. To fix the subscription rate for 1989-90.
5. To hear reports by and put questions to the Officers.
6. To elect officers for 1989-90.
7. Any other business.

ELECTION OF OFFICERS TO SERVE 1989-90

The present Council have nominated the following to stand for election to the new Council. Voting takes place at the AGM.

President: Rosemary Naylor
Vice President: Bob Owens
Secretary: Chris Sheldon
Assistant Secretary: Tony Ireland
Treasurer: Ken Marcus
Editor: Rosemary Naylor
Education Secretary: Eric Zucker
Society News Editor: Martin Chik
Assistant Society Editor: Pan Chik
Publicity Officer: Dave Powell
Editor of Handbook: Brian Jones
Editor, Council Newsletter: Bill O’Shea

Meetings Organizer:
Further nominations may be made before voting takes place. In particular, someone for the demanding position of Meetings Organizer is required. The current holder of the office wishes to stand down.

SPACEPRINTS COMPETITION

WOULD YOU LIKE YOUR SOCIETY TO WIN A H domest ace prize?

FIRST PRIZE £75
SECOND PRIZE £50
THIRD PRIZE £25

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

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

2. SKETCHES
Sketches of 4 different astronomical objects to be made during observing sessions. They can be made using elaboration eye, using binoculars or using a telescope.

3. ARTISTIC IMPRESSIONS
2 items (model or picture) which must be based on fact.

In judging, the number of entries in your society, and the number of members who have contributed towards the portfolio will be taken into consideration. Assuming that there will be a high standard of entries, the best entries will be used in Spaceprints in their 1990 calendar and there will then be a payment to the contributor (not the society).

Portfolios must be received by the Federation either at the AGM at Coventry.

Mrs Christine Sheldon
FAS Secretary

FUTURE DATES FOR YOUR DIARY

FAS meeting at Sheffield University - Saturday July 8. Details to be announced.
National Astronomy Week: 1990 November 17 to 24 inclusive.

This Newsletter Copyright Federation of Astronomical Societies 1989
ways in which we can be of help in furthering the aims of the organization would be welcome.

Dave Powell has not left the Council, and he is the Publicity Officer and has also been a great help in me in getting started as Secretary - a post which I find most stimulating.

Mrs Chris Sheldon

EDUCATION SECRETARY'S REPORT

Enquiries relating to education, mostly from family members but also from schools, children, continue to arrive. The close links between FAS and the Association for Astronomy Education allow many of these enquiries to be directed to the AAS. For reply, as these are of interest to both bodies. It also appears that many individuals FAS members (through their affiliated societies) are being made members of the AAS - perhaps there ought to be a scheme for joint membership?

This is a personal view which has not been discussed by the Council of other organization, and members' views on this are welcomed.

The FAS was represented at a one-day seminar organized by the AAS in London on 24 September by the President and the Education Secretary. The seminar had the following aims:

(a) to consider ways of sharing ideas about astronomy education now that it was to become part of the national curriculum;

(b) to explore ways of co-ordinating the efforts of the various interested groups in responding to the national curriculum.

Dr Anne Cohen, chairman of the AAS's Education Group, spoke about the efforts of the group to produce teaching materials for the 5-16 age group, particularly with regard to 'attainment target 16', the Earth in Space.

Representatives of other astronomical bodies, including FAS, outlined ways in which they were responding to this in the curriculum.

General points emerging from the seminar:

(1) 'Attainment target 16' represented the minimum entitlement for all pupils;

(2) there was a need to give in-service training to teachers to give them confidence and interest;

(3) a trial of curriculum material (including audio-visual aids) was necessary and there was a need to co-ordinate this;

(4) the achievement of 'target 16' could be demonstrated through a number of curriculum models; for the 11-16 year age group there should be integration of astronomical ideas with maths, history, science, art, environmental studies, etc.

Julian Ravey, also from the AAS, suggested that there was a need to share information so as to avoid duplication from one area to another.

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Dear Rosemary,

You ask why Mercury does not fit the geometric progression which Bode's Law would be if the zero was replaced by 1.5. You might also ask why the "Law" does not give the correct distance for Neptune and gives neither the perihelion nor the aphelion distances for Pluto! But these are in fact the wrong questions. The right questions are why the "Law" works as well as it does and what does it tell us about the Solar System.

The "Law" works fairly well because the orbital distances of the planets do form a fairly closely to an exponential relationship. Although the "Law" is not exact enough to be used to predict planetary distances, it can be replaced by a more accurate exponential function of the form:

$$r_n = 10^{-0.2(0.7 + 0.55n)}$$

where $r_n$ is the mean orbital radius of the $n$th planet. This is a straight line on a log-normal graph and gives $r_1 = 0.35$ (Mercury).

It is generally agreed that the near exponential relationship of the planetary orbits has been determined by forces which have acted on the planets since the time of formation. Hills concluded that dynamical relaxation causes all planetary systems to reach a stationary state with a number of common characteristics, notably a tendency for the periods of adjacent orbits to be small integer fractions of each other. There is a marked preference for commensurabilities in a narrow range between 3/4 and 3/5. Consequently Bode's Law (or its refinements) results from the fact that some commensurabilities are more favoured than others. It has been noted that the major satellite systems also demonstrate preferred commensurabilities and it is presumed that the cause is the same.

Departures from a strict commensurability are explained by tidal evolution. After formation at random and not closely adjacent mean radial, tidal forces may have sorted the secondary (resonances) to the point where they have adjusted the orbits until stable resonances exist overall. Stability is achieved when confluence and tidal forces are at a minimum, and it must be assured that the Solar System reached this state a long time ago. All that Bode's Law tells us is that the Solar System has achieved stability!

Yours sincerely

Stewart Campbell
Edinburgh


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FEDERATION SWEATSHIRTS AND T-SHIRTS

These are now available in pale blue with a royal blue FAS logo. Prices are as follows:

**Sweatshirts:**
- 22" to 28" £5.50
- All adult sizes £5.00

**T-Shirts:**
- 22" to 28" (polysteric) £2.65
- All adult sizes £2.50

The prices for each size depend on a minimum order of 20 (for the whole of the Federation).

Please send cash with order to the Secretary, Mrs C Sheldon, Whitehaven, Maytree Road, Lower Moor, Penrith, Wark, Nr 10 2NY.

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ASTROPHOTOGRAPHY

Geoffrey Johnstone
Coventry and Warwickshire AS

I have recently been trying out IMAX 3500 black and white film, and I must say I am most impressed. Due to reciprocity failure and skog fog two minutes is about the maximum possible exposure. Even at only 1/4 sec it really reaches 84 mag at the prime focus of my 0.25m f5 Newtonian. Remembering that 1244 is about 100 times fainter than the faintest star visible to the naked eye you can see how impressive it is. It is making deep sky photographs of quality within the capacity of many more amateurs. I have taken some recently without even looking through the guide scope or touching the drive controller. The mag is that it does need some knowledge of home developing and printing, but this is not a difficult technique to learn with a bit of determination. The photographs of M31 below shows the fainter cluster NGC 2158 very well indeed, remarkable in fact, for just two minutes' exposure.

Photograph of Messier 35 and NGC 2158 by G Johnstone. Film IMAX 3500.

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Dear Madam,

QUINTUS AND CHARON

This year marks the rare perihelion of Pluto, and by coincidence over the past few years a rare series of mutual eclipses of Pluto and Charon have been taking place yielding valuable information about these distant worlds where no space probe is expected to go in the foreseeable future. Some facts about Pluto's relatively large satellite have prompted the question of its status in the solar system. Latest figures give values of 20 and 1180 kilometers for the diameters of the pair. Compare this with the smallest classical major planet, Mercury (2498 km) and the largest known minor planet, Ceres (1300 km), and we see that Pluto and Charon are intermediate in size. The question has been asked now whether we should class Pluto, after all, as a major planet, or relegate it to minor planet status? However, the bar-treasures of the Pluto-Charon dumbbell lies outside Pluto (unlike the Earth-Moon system) so can we also ask - is Charon a satellite? Or should we regard it as a planet - a double planet member? If we regard the larger body that auto-stable as a major planet, can we then refer to Charon as a tenth major planet? Charon seems unique with the possibility of three categories: planet, asteroid and satellite. Ceres is itself smaller than Charon and Pluto, yet it is about eight times more massive than the next biggest asteroid, Pallas, so if we take the line between asteroid and planet at between Ceres and Pallas, then we could all fill the gap between Mars and Jupiter with a major planet. This club includes Ceres and Charon to the club of major status and have a solar system of eleven planets instead of nine! Have any other members any comments?

Yours sincerely

Brian Young
Scottish Astronomers Group
Vo Mills Observatory, Dundee.

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Dear Rosemary,

I am trying to find out some more information on an observatory in the Norwich area. It is in the latter part of the 19th century.

There were two domes, the largest being 2ft, which is thought housed a 9" refractor. The owner Mr George James Newbigin lived at Town House, Thorpe St Andrew, and died in 1919 a few years after moving down to Sutton in Surrey. His son, A M Newbigin lived in Wellingham and was also a keen astronomer. After his father's death he moved into his house, Lyndale in Sutton, and later in 1927 moved to Thorpe. The telescopes were in existence in 1895 as we have found a photo from the local newspaper.

We have RAS copies of both Newbigin's biographies from Dr Dewhurst, but if anyone has any further information on the matter I would be pleased to hear from them. Any photographs etc would also be welcome.

Yours faithfully

Malcolm Jones
Secretary, Norwich AS

20 Arbor House, Norwich Road, Mulbarton, Norwich NR14 8UT.
AYLESBURY AS: Peter Biswell gave an observing report; Friday night observing sessions had been flourishing. Up to a dozen members have been coming to the observatory to use the society telescope and their own instruments. On Monday 5 December 1988 at the observatory a discussion will take place "Everything you ever wanted to know about astronomy but were afraid to ask!". Members are invited to submit anonymous written questions which will be put to the meeting as a whole. "Spot the Supernova" - at a few meetings members are invited to play an exciting new space game designed by David Hinds. This will have a dual purpose of entertainment and fund raising.

BRITISH AEROSPACE AS: During 1988 the Astronomer was received with affection. The Messer league is going well with members gaining points using telescopes and binoculars. The society hopes to produce a society newsletter and is asking its members for a logo design. A Christmas Lecture was held, the title being "The Trials and Tribulations of Astronomers". The lecture was given by Dave Groome of the Condor Brow Observatory. The society has acquired new members and the three volumes of Burnham's Celestial Handbook.

CARDIFF AS: Members of the society attended an astronomy convention at Bristol in 1988. The society's recent newsletter- a member of staff at the University of Wales College of Cardiff, Bob Thomas, gave details of the various activities of the members of staff at the Astronomy Department. Members of the society recently visited the local observatory at Cardiff and had a guided tour and video presentation. The society has telescopes donated by members, an 8-inch reflector and a 20-inch telescope. An observatory project is now underway to house the 20-inch. It has been decided that an 8-inch should be used and the construction of a suitable building for the 20-inch. The observatory will be situated a short distance from Cardiff away from the city lights.

CLEVELAND AS: Following the success of a joint conference of the society and the BAA in 1984, the society staged a convention entitled "Cosmos North East" on 15th October 1988 at Teeside Polytechnic. This eleven hour session included a buffet lunch. The meeting consisted of six talks by distinguished guest speakers, illustrated with some superb projected colour slides. Peter Rea spoke on "The Golden Age of Planetary Exploration"; Dr David Gavine on "Mars Past, Present and Future"; Nigel Henbest on "Supernova Death of a Star"; Robert Cooper on "How Big is Space"; Neil Bone on "Astronomy - Origin of Life". The talks which by no means elementary were delivered in a very entertaining manner and were followed by questions from an enthusiastic audience. The organization of the event was largely the work of Neil Haggart and John McSween, who were more than grateful for the results. 167 tickets were sold, and some people travelled from as far afield as the south coast of England. The society hopes to promote another event next year.

COTSWOLD AS: Budding amateur radio astronomer, Rob Davies, is now about to open up a whole new interest in the society. He has an Astro Systems radio telescope with full interferometer system. John Fletcher had Heathen Cooper to inaugurate his observatory "Mount Turlfley". He talked about his part time colleague as "one of the best astronomers in the country, he is very dedicated and very professional in his attitude". Bernard Abrams and Tony Ireland were interviewed by BBC Radio Gloucestershire for 23 minute slots in a morning show. In the next five days, this was just before Christmas and astronomy. The society has booked the space at the Cheltenham library for July during the week prior to the 20th anniversary of the first Apollo Moon landing. There will be an exhibition of photographs, drawing etc.

DARLINGTON AS: One of the best bits of news to come out of 1988 for the society is that the 16-inch Reflectors is now operational and working excellently. Weather permitting, the May meeting will be held at the telescope. The meeting will have an exhibition and drawings and photographs of observations by various members. The programme of events up till July is as follows: March 3rd, Practical Observing by Chris Walker; April 7th, Antipodean Astronomical Extravaganza; May 5th, Field Trip to the "Gilling Observatory"; June 2nd, On the Edge of Forever, by David Graham; and July 7th, The Apollo Years by David Graham.

EASTBOURNE AS: Since the AGM last year the society has retained a membership of about 50. In September a public observing day was held at Eastbourne seafront, where during the day displays of telescopes and the RGO William Herschel Telescope display stand could be viewed. During the afternoon visitors were able to observe the sun. In the evening there were clear skies and the Moon, Jupiter, Mars and Saturn were observed. Then in October an exhibition was held at the local shopping centre. In December a monthly meeting was held in the conference room of Herstmonceux Castle. A talk was given by Dr George Wilkins on "Space Geodesy".

FURNESS AS: The society has travelled twice to Jodrell Bank, once for the FAS convention and once for a behind-the-scenes tour of the laboratories. They have also travelled to York. The society has now a regular meeting once a month.

HAMPDEN AS: The front cover of the November newsletter shows a photograph of visitors viewing Mars through the 5-inch refracting telescope during their open week. This was held during the 17th-24th September and was the most successful ever held by the group since National Astronomy Week in 1985. Altogether 150 people came to view Mars. On Sunday 6th November the society held its 10th Anniversary of the opening of the Clapham Observatory. A group of thirteen members went to the FAS convention at Herstmonceux. A group training session will be given by Robin Gorman on Friday 24th February. The training sessions are for the benefit of all members who are unfamiliar with the operation of the group's equipment.

HUMBERSIDE AFS: The society Christmas Dinner was held at the Wills O'Nuts public house and was fairly well attended. Richard Cooper has an article in the society newsletter titled "Double Stars, How and What to Observe", saying that this is a fascinating and absorbing branch of study within the sphere of astronomy because of their endless variety and study potential. The society has had two public lectures: the first one was during November by Paul Money on the subject of "Planetary Satellites", the second by Rosemary Naylor on "Stellar Evolution", this talk was with the help of many visual aids. Over the years the society has been an integral part of the community.
Plenary AS: During November the society had its first meeting to be held in a room provided by Haringey Council. Martin King from S E T outlines the society's plans for the coming year. The society had a Christmas social, Don Taylor has written a report for the newsletter. He says that he is often chuffed and hopeful, which is a very encouraging word in the society, nearly every member has a telescope which they made themselves. Bob Butler has an article in the society newsletter titled "Observing Techniques." He describes adding-ons to telescopes which will improve the observing session.

As: Observing Plan 1987: Society members are invited to take part in the observing plans which are published in the society newsletter. A dark site on Hidy Moor, an old site and one used before, will be used for the event. There will be a problem with the phone lines, which will be left disconnected.

SAGAS: Reports were received from various society members.

S Anchor: The Society currently has 9,000 members, all over the world, and is growing.
Book Review

STAR TALES: Ian Ridpath pp 162 Lutterworth Press 1988; £12.95

Many readers, from armchair astronomers to planetarium presenters, will welcome this book of tales of the constellations. As far as I know, we all know a few of the myths associated with the classical constellations; how Perseus rescued Andromeda from the sea-monster, and why Berenice's hair ended up in the sky, as the title suggests, a collection of tales. The myths associated with the ancient constellations come from the Greek and Roman stories and poems which the author has studied in translation. His list of sources is quite impressive, but the greatest value of the book must lie in the illustrations that accompany each constellation - and they are all here - is accompanied by a photograph of either an engraving from the 17th century or an engraving from Flamsteed's Uranographia of 1729. Goodness knows how these astronomers used these maps to find the stars behind the clouds and binoculars and telescopes.

Inevitably this book will be compared with R H Allen's Star Names, Their Lore and Meaning. But that book looks at star names and traces them back to their origins, whereas Ridpath's book relates principally to the constellations and the stories they evoke. The modern constellations, especially those of Messier, have complicated names, but others are listed, including two dozen constellations which are now obsolete. It is a delight to see the illustrations, for the Reinhard and Houtman, the Harvest Keeper, introduced by French astronomers in the 17th century, since this reviewer has an old French star map, late 17th century, showing Le Renard and Le Messie, the same two constellations.

This is a book to enjoy. It is easily read in a way that Allen's book is not and does successfully what it sets out to do.

Ridpath has already earned a reputation as a presenter of the celestial constellations and the real curiosities they contain, in the handbooks he has written in collaboration with the cartographer Neil Turok. Now, with this book, he aims to be an authority on their entertainment value too.

Rosemary Naylor

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EARTH and SKY

Mail Order books, posters and sets of slides - lists in exchange for two first class stamps. Please send to Eastern Publishing Ltd.

The local hotel welcomes eclipse watchers in this off the track island of Bangka. In the foreground, though with their books to the camera, are Heather Cooper and Nigel Henbest,