



# GNOMON

Newsletter of the Association for Astronomy Education

Vol. 9 No. 4

ISSN 0952-326X

SUMMER 1990

*This issue of 'Gnomon' has been sponsored  
by The Royal Astronomical Society*

The Association for Astronomy Education is grateful to the RAS, which has made a generous grant towards the cost of producing this newsletter.

As a result of this grant, we are now able to print 'The Universe in the Classroom' (by permission of its editor, Andrew Fraknoi) on a regular basis for many issues ahead, to be included with 'Gnomon'.

The 'Universe in the Classroom' is the newsletter of the Astronomical Society of the Pacific, San Francisco, USA. It is published four times a year. (Members of the AAE should note that invitations to renew, etc., which appear in 'The Universe in the Classroom', are addressed to those subscribing *directly* to that newsletter and not to readers of 'Gnomon'.)

## Editorial Comment

No one likes increases in subscription rates, but unless we are realistic about costs, we may find ourselves in financial difficulties. Unfortunately, inflation hits organisations like the AAE particularly hard, as postage, telephone charges, printing, etc. (which make up a large percentage of our activities) rise higher than the average inflation rate. We hope our members understand the reason for the current rise in subscriptions.

...

**Gnomon** has a new printer and typesetter. They are: Peterson Printers, South Shields, and Roger Booth Associates (typesetters), Newcastle upon Tyne.

...

Articles from members are always welcome, but please keep them brief and to the point. Please make sure that diagrams, graphs, etc. will be clearly reproduced in printing — especially if they have to be reduced in size. We cannot cope with difficult artwork.

...

Finally, we are pleased to announce that 'The Universe in the Classroom', the newsletter of the Astronomical Society of the Pacific, will now be 'incorporated' into **Gnomon** on a regular basis. The theme in this issue is a glossary of astronomical terms; the second part (on astronomy books) will be included in the next issue.

## Teachers' Work-Packs

These may be purchased from the Association for Science Education (ASE) by sending a remittance of £3.50 plus £1.20 p&p at College Lane, Hatfield, Herts AL10 9AA.

The secondary work-packs should be available in the Autumn.

## New Subscription Rates

The Annual General Meeting on 19 May 1990 agreed to increase the annual subscription in line with inflation. The new rates, which will operate from next October, are:

Affiliated institutions .....	£15.00
Individual members .....	£7.50
Retired members .....	£5.00

**Practising teachers** may set the whole amount of their subscriptions against income tax. As this is currently 25%, this means that their actual contributions are only 75% of the figures shown above. Members encountering difficulties with this tax concession should contact the Treasurer.

## Annual Meeting Report

The tenth annual meeting of the Association was held on May 19th at Manchester Grammar School. The meeting, held in the main library, started with coffee, at 10.30am.

Eighteen people, including our patron, Sir Francis Graham Smith, the Astronomer Royal, attended the Annual General Meeting. Reports were received from officers of the Association. The election of new officers took place at the AGM and as a result the Association has a new President in Mr Julian Ravest. Julian was a founder member of the AAE and has been an active council member throughout. Eva Hans will become our new Assistant Secretary. Other posts remain unchanged.

Following a light lunch, courtesy of MGS parents' association, an audience of twenty five, including some local teachers and interested sixth form students, were treated to an excursion through the world of

*Astronomy Today* by Professor Ian Robson and his travelling slide show.

Finally, Dr Anne Cohen, on behalf of the Education Group, explained some of the history behind the new 'Earth and Space' teacher pack. This was on view and for sale at the meeting. A display of pupils' work on Space and related topics was provided by Anne Cohen and Sylvia Chaplin.

The Association acknowledges its thanks to Alan Pickwick and his colleagues at MGS for hosting the meeting and ensuring a congenial atmosphere. The minutes of the AGM will appear in the next issue of 'Gnomon'.

Bob Kibble  
Secretary

## ASE Annual Meeting 1991

This will take place on 4th–7th January, 1991 at the University of Birmingham. Numbers in excess of 5,000 science teachers are expected. The AAE intends to have stands at the meeting, and teachers who would like to participate in the event should contact Bob Kibble, AAE Secretary, at the address given elsewhere in this issue.

## Evening Class in Astronomy at Uxbridge

An astronomy evening class is planned for the academic year September 1990–June 1991 at Uxbridge College on Wednesday evenings, 7–9pm, covering the GCSE syllabus in astronomy. For those wanting to take a GCSE exam, the whole GCSE syllabus will be covered.

The course will also suit people with an interest in astronomy, especially those needing help in teaching the National Curriculum.

Those interested should contact Dr M.D. Mannion, Uxbridge College, Department of Science & General Studies, Park Uxbridge, Middx UB8 1NQ. (Tel: 0895 30411)



# SKY Diary : Summer 1990

Solstice : June 21<sup>d</sup> 15<sup>h</sup> 35<sup>m</sup>

Equinox : Sept 23<sup>d</sup> 06<sup>h</sup> 55<sup>m</sup>

## Moon

	New Moon			First Quarter			Full Moon			Last Quarter					
June	22 <sup>d</sup>	18 <sup>h</sup>	55 <sup>m</sup>	June	29 <sup>d</sup>	22 <sup>h</sup>	07 <sup>m</sup>	July	8 <sup>d</sup>	01 <sup>h</sup>	23 <sup>m</sup>	July	15 <sup>d</sup>	11 <sup>h</sup>	04 <sup>m</sup>
July	22	02	54	July	29	14	01	Aug	6	14	19	Aug	13	15	54
Aug	20	12	39	Aug	28	07	34	Sept	5	01	46	Sept	11	20	53
Sept.	19	00	46												

## Planets

- Mercury:** morning object up to June 25th and again after Sept. 16th.
- Venus:** evening object from July 11th to Sept 1st; then a morning object.
- Mars:** morning object
- Jupiter:** evening object moving closer to the Sun until it becomes unobservable in early July. It reappears in the morning sky in late July.
- Saturn:** morning object in the constellation of Sagittarius moving to opposition on July 14th when it can be seen all night. Thereafter moving to the evening sky.

## Meteors

The Perseid meteor shower occurs between July 23rd and August 20th. The best night to watch is August 12/13 when you should see one meteor per minute. Face East if observing before midnight or South-East if meteor spotting after midnight.

## Eclipses

The total eclipse of the Sun on July 22nd is not visible from the UK but it's not too late to book your summer holidays for N.E. Europe, North of Greenland, North Asia, arctic regions, N.W. of North America or the Hawaiian Islands.

There will also be a partial eclipse of the Moon on August 6th which will be visible from S.W. Alaska, Pacific Ocean, Antarctica, Australasia, S. & E. Asia.

(Information supplied by South Tyneside College)

## Astronomy Resource Centres

The following lists provide basic details of centres throughout the United Kingdom which may be visited by classes and which can provide support services to schools and teachers taking National Curriculum astronomy topics. Many are open to the general public. The resource centres have been placed in two lists according to the services they can offer. The first list, which we have called AAE Resource Centres, provide for all ages and generally offer a broad range of facilities such as displays, planetarium shows, teachers' courses, etc. The centres in the second list are more specialised. We would, however, recommend that contact is made with your nearest centre in the first place in order to obtain further details.

### AAE Resource Centres

#### ARMAGH PLANETARIUM

College Hill, Armagh, N. Ireland BT61 9DB  
Tel: 0861-523689

Planetarium, Exhibition, Observatory, large Astronomy Shop, Portable planetarium for hire and Astrovan for schools

Exhibition Hall open Mon-Sat, 2.00-4.45pm throughout the year

Star shows for schools (admission free to N. Ireland Schools), bookings to be made in advance, Mon-Fri am or pm

#### HATFIELD POLYTECHNIC OBSERVATORY

Bayfordbury, Lower Hatfield Road, Hertford SG13 8LD - Tel: 0992-558451

Observatory, Public Lectures,

Talks on request, Courses

Open Mondays Oct-Mar only, 7-9pm to pre-booked parties.

#### JODRELL BANK SCIENCE CENTRE AND TREE PARK

Low Withington, Macclesfield, Cheshire SK11 9DL - Tel: 0477-71339

Radio telescopes, Space Age Exhibition, Planetarium, Gardens, Arboretum, Shop, Cafe

Open daily Mar-Oct, 10.30am-5.30pm; weekends Nov-Mar, 2.00-5.00pm

(Schools weekdays by arrangement), teachers' packs. Admission charge, group bookings in advance

#### LIVERPOOL, MUSEUM PLANETARIUM

Liverpool Museum, William Brown Liverpool L3 8EN - Tel: 051-207-0001

Astronomy and Space Exhibition, Planetarium, Portable Planetarium for hire, Courses, Cafe, Shop

Open Tues-Fri, Planetarium shows for schools 10.00am-3.00pm (public shows 3.15pm, Sat-sun 1.00-4.00pm)

Admission charge, group bookings in advance

#### LONDON PLANETARIUM

Marylebone Road, London NW1 5LR  
Tel: 01-486-1121

Planetarium, Astronomers' Gallery, Shop, Cafe

Open daily 12.20am-5.00pm (Schools talks Mon-Fri 11.00am)

Admission charge, group bookings in advance. Teachers' packs free with booking

#### OLD ROYAL OBSERVATORY AND NATIONAL MARITIME MUSEUM

Greenwich, London SE10 9NF

Tel: 01-858-1167

Exhibitions, Observatory, Planetarium, Courses, Shop, Restaurant

Open Mon-Sat 10.00am-5.00pm,

Sun 2.00-5.00pm (6.00pm Summer)

Planetarium shows for schools twice daily Admission charge, group bookings in advance, special schools annual ticket. Free teachers' packs

#### PRESTON, LANCASHIRE POLYTECHNIC

School of Physics and Astronomy, Preston PR1 2TQ - Tel: 0722-22141

Topical Exhibition, Weather Station,

Observatories, Lectures, Courses

Open Mon-Fri 10.30am-12.30pm,

2.00pm-4.00pm; weekends by request

Admission free to schools, group bookings in advance. Teachers' packs usually free

#### SOUTH TYNESIDE COLLEGE PLANETARIUM

St George's Avenue, South Shields, Tyne and Wear - Tel: 091-456-0403, ext 477

Planetarium, Observatory, Courses, Shop, Snack bar, Public Planetarium performances and Observatory

Open some evenings

Schools programmes on demand.

Admission free to South Tyneside Schools, charge for others. Group bookings in advance

### Other Places to Visit

#### HERSCHEL HOUSE AND MUSEUM

Items belonging to William Herschel in Georgian setting

19 New King Street, Bath BA1 2BL

#### AMATEUR ASTRONOMY CENTRE

Observatory, camera obscura, planetarium

111 Todmorden Road, Bacup, Lancs

Tel: 0706-877020

#### MILLS OBSERVATORY

Exhibition, public observatory, planetarium, workshops, courses, shop

Balgay Park, Glamis Road, Dundee DD2 2UB

Tel: 0382-67138

#### JEWEL AND ESK VALLEY COLLEGE PLANETARIUM

24 Milton Road East, Edinburgh EH15 2PP

#### GLASGOW UNIVERSITY PLANETARIUM

Observatory, planetarium courses, schools open day

Acre Road/Maryhill Road, Glasgow G20 0T

Tel: 041 946 5213

#### FERNLEY OBSERVATORY

Gores Lane, Formby, Liverpool L37 3NY

Tel: 07048-78653

#### UNIVERSITY OF LONDON PLANETARIUM

Mill Hill Park, London NW7 8DS

#### ROYAL OBSERVATORY EDINBURGH

Exhibition

Visitor Centre, Blackford Hill, Edinburgh

Tel: 031-667 3321



# Stargazers Trust Sponsors Competition for Amateur Astronomers

First prize: £1,000 • Second prize: £500 • Third prize £250

The Stargazers Trust, a registered charity, is offering what is believed to be the largest cash prize ever made available to British amateur astronomers. The Trust has announced a competition to find the most scientifically useful piece of astronomical research carried out by an amateur over a two year period ending on the last day of April 1991. The competition is open to any individual, or group, based in the United Kingdom. There are no restrictions upon the type of research that can be undertaken.

By sponsoring this competition, the Trust hopes to bring to the attention of the public, as well as emphasizing to currently active amateur astronomers, the great potential that amateur observers have for making original contributions to astronomical research. In most areas of observation this potential has arisen because of the increased availability of modern instrumentation at prices comparable with many household consumer goods (computers, TV, video recorders etc). This gives the amateur astronomer access to instruments that until a few years ago were the sole province of professional observers.

In support and recognition of the great achievements of Canterbury High School in constructing their own observatory

(featured on a recent BBC TV Blue Peter show), the Trust has agreed to lend the school an example of this new technology. The Trust will provide the school with a photo-electric photometer which will allow the pupils to measure the brightness of astronomical objects to an accuracy that will enable them to contribute fully to many research programmes.

It is clear that the time is now ripe for British amateur astronomers to start to take part in some of the excitement that comes from true scientific discovery. The Trust hopes that by offering prizes of £1,000, £500 and £250 they will not only encourage many of the thousands of British amateur astronomers to combine the present enjoyment of their hobby with the thrill of doing real science but will also tempt many armchair observers to get outside and try the real thing!

#### Enquiries should be addressed to:

Dr C.D. Pike (Secretary)  
Stargazers Trust, PO Box 337  
Hailsham, East Sussex BN27 1PT

#### or to:

Chairman of the Trustees:  
John Watson FRCS (Tel: 0424 83226)

• • •

The competition is open to any amateur or group of amateur astronomers based in the United Kingdom. Prizes will be awarded to those entries which in the opinion of the Trustees represent the most significant and original contribution to research in observational astronomy. Any research carried out in the two years up to and including April 1991 will be eligible. No entrance fee is payable.

Three major prizes will be awarded in June 1991 for the continued support of the winners' astronomical research.

These will be to the value of:

First prize	–	£1,000
Second prize	–	£500
Third prize	–	£250

Other prizes may be awarded at the discretion of the Trustees.

Full information on the rules of the competition and the required format for entries, together with general information about the Stargazers Trust, will be sent to prospective entrants who should apply for registration, preferably before 1st October 1990.

## A Solution to Gnoblem 9

See Vol.9, No.3, page 4.

One correspondent writes:

"On the basis that, if the body were coming from 'outside the Solar System', it would presumably be heading for the most massive body in the region. The Sun would have to be on the far side of the Earth from the oncoming meteor, otherwise it would hit the Sun first! The Sun would be (in theory) directly opposite its mid-day position, i.e.

'straight up' facing the oncoming meteor, in order for it to come 'straight down' the chimney. Therefore it must be *midnight*".

Another correspondent says that the chimney must be inclined from the vertical to avoid the meteorite hitting the chimney walls as the Earth rotated on its axis (rather like the aberration of light). But without a knowledge of the velocity of the meteorite, he says it is impossible to make the necessary calculation.

Cmdr Mills, who sent in the problem, agrees with the 'midnight' solution; but only if the Earth were not rotating. Taking this rotation into account, he calculates that the impact takes place at 02<sup>h</sup> 20<sup>m</sup> past midnight.

The reasoning is too long to print in this Newsletter, but interested readers will be sent a photocopy of Robert Mills' solution on receipt of a stamped addressed envelope.

## Gnoblem 10

A black hole is an object with such a large gravitational pull that nothing can escape from it after being swallowed up by it. It can be detected by its external gravitational field.

Suppose two black holes collide with each other. What is the resulting effect? Readers' views are welcome.

### Obituaries

It is with great regret that we have to announce the deaths of two members:

**Mr Iain Neil**, of Edinburgh  
died last August.

**Mr J.B. Woodall**, of Fareham, Hants  
died in January.

We extend our sympathies to  
Mrs Neil and Mrs Woodall.

## Federation of Astronomical Societies

### SUMMER CONVENTION

14th July 1990

Hosted by *The West Yorkshire Astronomical Society (Pontefract)*

#### Attractions include:

- Excellent Programme of Guest Speakers
- Trade Stands
- WYAS Rosse Observatory, housing 18" Reflecting Telescope, open all weekend.
- Astronomical Computing Area
- Refreshments, including Licensed Bars, Tea, Coffee, Snacks.
- Astronomical Society Displays
- Limited Caravan Space

See forthcoming FAS Newsletter for further details, or contact WYAS Secretary, Pete McKenna, at 53 Queen Street, Pontefract, West Yorkshire WF8 4AF. Tel: 0977-709065

Bookings should be made directly to the FAS Treasurer, Ken Marcus, who will supply details at 5 Cedars Gardens, Brighton, East Sussex BN1 6YD. Tel: 0273-556265

*AAE Members are welcome at this meeting*



Relative to astrology: there seem to be lots of books on the subject and on related ideas, in our local warehouse bookshop. Some are single-star-sign paper-backs and some are text books. I was very tempted to buy one called *The Practical Astrologer*, which explains 'how it works' and has lots of pages and diagrams and ephemerides. I didn't buy it, as I thought that to do so would only give astrology a boost. It would be better to get hold of *Astrology – True or False?* or *The Gemini Syndrome* – but, they cost much more.

My astrology-diary-keeping dwindled towards the end of last year and I hadn't intended to go on with it, anyway. Results:

Over the period starting April 17th 1989 and finishing on December 31st, the scores were as follows: MINUS: 130, PLUS: 5. This was scored as follows:

A positive prediction which <i>did</i> happen	+1
A positive prediction which <i>did not</i> happen	-1
A positive event which occurred, not forecast	-1
Massive mis-forecasts	-10
Exceptional errors	-20
Errors in positions of planets	-10 *

Flicking back through the diary, a few trends emerge. For one thing, if the astrologer mentions a particular problem of hazard, he/she tends to stick to it for several weeks. Hence, if wildly wrong, the forecast stays wildly wrong! In my case, dire warnings of a 'tense domestic atmosphere' kept on recurring, week after week. There was no such thing, in fact.

'Stars' from different papers very rarely had anything in common. On a couple of occasions, they were completely opposite!

One of the worst mistakes (the -20), was when the week's predictions for October 9–15th were a word-for-word reprint of those for September 18–24th. You could call this a 'printing error', but some people base their weekly activities on these erroneous predictions!

Two forecasts, on consecutive weeks (December 4–10th and 11–17th) spoke of the 'New Moon' – i.e. the Moon was still 'new' a week later. The cuttings were from editions of the same newspaper, therefore, the same 'forecaster'! The actual dates of New Moons were November 28th and December 28th, so what on earth does the term 'New Moon' mean in astrology? It has no relation to fact.

It was amusing to note how, as Christmas approached, 'predictions' appeared which could have applied to *anyone* during those few weeks!

Two overwhelming impressions emerged:

1. Most of it was obscure enough to be vaguely correct. When something *positive* was predicted, it was almost always wrong – that's where most of the minuses came from.
2. Most of it was general *advice*, applicable to *anybody* at *any time*. A lot of people could find something to fit the 'forecast', irrespective of their 'star signs'.

Some of the 'stars' in small local papers, amounted to blatant advertising for some local event (see cutting – 'Central Victorian'). This brings the whole business of such 'predictions' down to the level of farce – or worse!

'Proper' or 'Professional' astrologers,

who sell complex, detailed horoscopes for large fees, apparently look down upon these 'pseudo-astrologers' and see them as giving the whole business a bad name!

My main objection to the 'whole business' is that some people base all their decisions – big and small – on 'the stars', instead of reasoning things out for themselves. This trend is especially worrying when young people start to build life-time habits or practices on such groundless ideas, instead of becoming proficient in thinking and reasoning, which is based on proved principles and intelligent theories.

Tarot-card reading and crystal-ball gazing should be replaced by thinking about one's own capabilities, attributes and ambitions.

The collection of crystals for the purpose of vague benefits can be replaced by collecting many different samples of rocks and investigating the past and present of something *real* – planet Earth, on which we all live.

\* This referred to the position of Jupiter, 'moving into Cancer in August' (see cutting).

Yours sincerely,  
Karenza Burk  
R.M.B. 210, Creswick, Victoria 3363,  
Australia

Mrs Burk has supplied copies of cuttings from Australian newspapers – she refers to these in her letter. They make fascinating reading. If anyone would like copies of these cuttings, please send an SAE to the Editor and enclose 50p (in stamps if preferred) to cover photocopying costs.

## Astronomy Education in Bucks

We have received the following letter from the Workers' Educational Association (WEA). Interested AEE members should apply directly to the WEA.

### Adult education courses in Buckinghamshire, during 1990/01, on Astronomy and related subjects

I am responsible for arranging adult education courses for the WEA in Buckinghamshire and would appreciate your help and advice.

I am seeking part-time tutors for evening courses on Astronomy and related subjects (for non-specialist members of the general

public), to be held during 1990/91 in various places. Interest has been shown in *Chesham*, *Greater Missenden*, *High Wycombe* and *Quinton* (near Aylesbury), in subjects such as:

**Introduction to Astronomy** (at Chesham and Quinton);

**The Planets** (for an existing group in High Wycombe);

a course linked to **Hawkings' 'A Brief History of Time'** (at Great Missenden).

Courses would be held one evening a week, for up to 10 or more meetings, each of 1½ or 2 hours, and would start late

September 1990 or January 1991.

We can offer part-time tutors a teaching fee of £12 an hour.

If you can let me know of someone on your staff, or in your organisation, or a suitable graduate student, who may be interested, or can put them in touch with me as soon as possible, I would be very grateful.

Yours sincerely,  
Adrian Taylor  
WEA Development Officer for Bucks  
Walton House, Walton Street  
Aylesbury, Bucks HP21 7QQ  
(Tel: 0296-83648)

### Addresses for Correspondence

**Secretary:** Bob Kibble, 34 Acland Crescent, Denmark Hill, London SE5 8EQ – for all general enquiries.  
(Tel: 071-274 0530)

**Treasurer:** Nick Steggall, 38 Victoria Crescent, Birkdale Road, Dewsbury, West Yorkshire WF13 4HJ – for all financial and subscription enquiries (Tel: 0924-454718)

**Editor:** Eric Zucker, 35 Gundreda Road, Lewes, East Sussex BN7 1PT – for all enquiries concerning the Newsletter.  
(Tel: 0273-474347).

### Revised Charges for Advertising in Gnomon (May 1990)

The prices quoted below are for *one* issue. There are four issues per year.  
A 25% reduction is made for advertising in all four issues.

Members' advertisements are *free* if of reasonable length.

Whole page.....	£120
Half page .....	£60
Quarter page.....	£30
Inserts .....	£120 *

\* These may be of any size which may conveniently be inserted into the newsletter. There may also be an additional charge for posting if the inserts are heavy.