



Memorial to George Alcock commissioned by the BAA

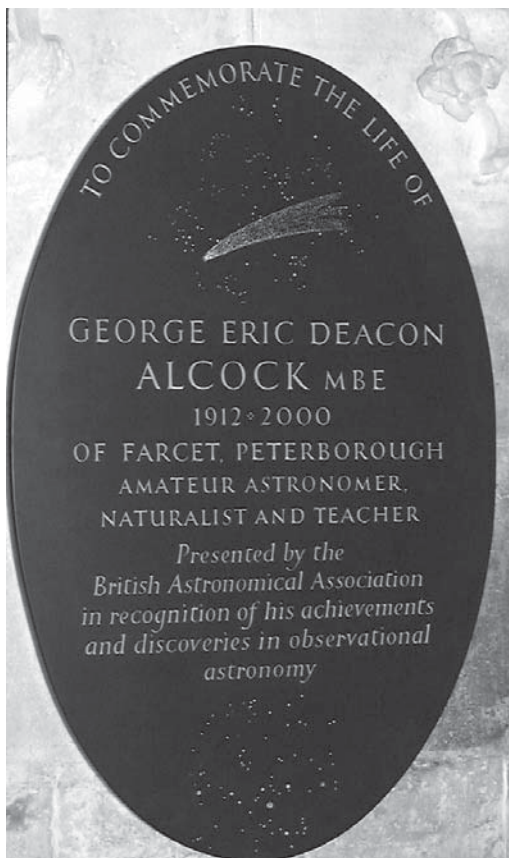
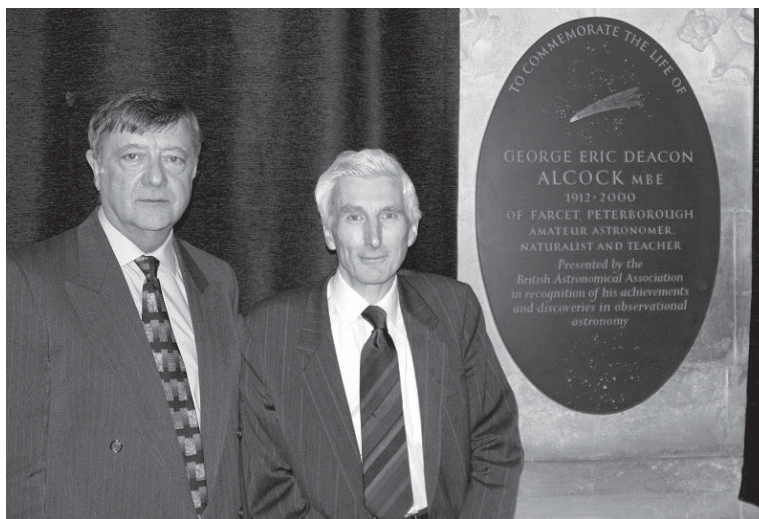


Photo by Guy Hurst.



BAA President, Tom Boles (left), with Prof Sir Martin Rees at the unveiling ceremony. Photo by Nick James.

On 2005 April 19, a carved slate memorial plaque in Peterborough Cathedral, Cambridgeshire, commemorating former BAA member George Eric Deacon Alcock (1912–2000) was unveiled by the Astronomer Royal, Professor Sir Martin Rees FRS. George visually discovered five novae and five comets during his active observing life, and one of his other interests was cathedral architecture, with a particular interest in that of Peterborough near his home. An obituary for George by Guy Hurst may be found in the 2001 April *Journal*.

The plaque was designed and carved by Ronald Parsons, a designer and letter cutter whose work may be seen in churches and civic buildings throughout the UK and abroad. It shows a drawing by George of

comet C/1955 L1 (Mrkos), probably made on 1955 June 18, and a sketch of Nova Vulpeculae 1976, one of George's nova discoveries, from a photograph by Harold Ridley. The stars in the background fields have been engraved and laid in with 'leaf' of the rare metal palladium, which shines like silver but does not tarnish.

The BAA is greatly indebted to the Dean, the Very Rev Michael Bunker, for his help, to the Chapter of Peterborough Cathedral for granting permission for the erection of the memorial, and to the Cathedral Architect, Julian Limentani, for his assistance in the project. Our thanks are also especially due to David Tucker ARIBA, Treasurer of the BAA, for overseeing the concept from design to completion and ensuring that the wishes of Council were faithfully carried out.



BAA Treasurer David Tucker ARIBA (left) with sculptor Ronald Parsons and the cathedral architect, Julian Limentani (right). Photo by Richard McKim.

From the President

In the last issue I started a description of some of the tasks and duties that the BAA Council undertakes. I promised to give an idea of the routine agenda items and business that Council becomes involved in during a typical meeting. Much of the Council agenda is relatively fixed, with regular reports from officers and other post holders. The agenda is set against an annual calendar that lists additional tasks to be completed at relatively fixed times each year. I will come back to these specific items later, but let us begin by looking at a very ordinary standard agenda.

Like most societies, we start with apologies for absence and the confirmation of the

minutes from the previous meeting. This rarely takes more than a few minutes and any changes are usually of a minor or semantic nature. The next item on the agenda is President's Business. At this point the President informs Council of any letters or communications he has had since the last meeting, and any responses that they need to be aware of.

It is normal to look at membership announcements here. The names of any deaths that have occurred and resignations from members (and their reasons) are discussed and any necessary actions identified. We also look at the names of the candidates for proposal as members, and candidates for election. It is at

this point that Council formally approves the election of new members, subject to your confirmation at the next Ordinary Meeting.

It is also during the President's business that the 'Calendar' agenda items are usually discussed. The Calendar or 'Council Diary' is handed out to every member attending their first Council meeting in each BAA year. The year begins at the first meeting after the October AGM, and is quite separate from our financial year which starts in July.

The fixed calendar items are numerous and include welcoming the new Council, confirmation of post holders, confirmation of the next year's meeting dates, the awarding of the Association's medals and prizes, review of subscriptions, confirmation of the out of London meeting, the review of the work of Section Directors, confirming the accounts sent to the Charities Commission and Companies House, organising the next Council ballot, prices of publications and the re-appointment of the *Journal* Editor. This list is not exhaustive and the main items such as setting out next year's financial plan and agreeing the accounts with our auditors can straddle several meetings.

This sounds like a lot of work and on occasions it can be. Generally it is spread over the full year to lighten the load.

It is also during President's business that unusual and unplanned items might arise. If there are problems on premises, staffing or any legal issues, this is where they will appear. These can often be meaty problems as they do not fall neatly into the routine of a normal meeting. Most Presidents in the past have had to deal with at least one major issue during their presidencies. With a committed and supportive

Council these can usually be tackled with confidence.

The next fixed item is the Treasurer's business. Here we look at the management accounts and what we need to do to get closer to managing what we budgeted in the previous year. This can be a lively and interesting debate. The financial best estimate is possibly updated as a result of decisions by Council at a previous meeting.

Immediately after this comes the Business Secretary's slot. It is his or her responsibility to keep the rest of us on track and ensure that we stick to the Council Diary for that particular month. The sort of things that are included here are: when we need to consider the Association's awards, when the ballot papers go out for Council and the Officers, and such things as managing day to day requests from the office. The Business Secretary produces the agenda, and also takes the minutes of meetings. If anyone wishes to place anything on the agenda, even the President, it must go through the Business Secretary, who has the duty to make sure that we keep to our agreed protocols and procedures.

This is followed by the Paper Secretary's business. Here Council votes on which papers to accept or reject for publication in the *Journal*, based on the referees' and Paper Secretary's recommendations. At each meeting we also receive a short report from the Editor of the *Journal* of its progress, content and any issues requiring attention.

This is usually followed by a progress report from the Meetings Secretary on planned speakers, venues and timings. The status and any changes to the instrument collection are reported by the Curator of Instruments, and

an update on changes, proposed changes and activity levels on the Association's World Wide Web site is given by the website manager.

The last formal part of the meeting is addressed by the Public Relations Officer who brings Council up to date with media or astronomical events that could increase the Association's profile. This is also where campaigns to recruit new members are discussed. The final slot on the agenda, by which we are usually running well over time, is any other business. This is usually for trivial subjects as anything substantial should be considered as a planned agenda topic – if a significant item has not been advised to the Business Secretary in time to be sent out with the formal papers, then it will only be considered by Council in very exceptional circumstances.

By necessity I have crushed this into somewhat less than a thousand words. This can make the Council business look busy and overloaded, as sometimes it indeed can be. Being a member of Council can be a very rewarding experience if you are willing to roll your sleeves up and get involved. I urge anyone who has the slightest interest in joining Council to consider it now. Have a word with someone already on Council. Any member, past or present, will give you an honest description of what takes place and will be pleased to speak to you and answer your questions.

If there is anything about your organisation that you would like to see changed, join the team and help to change it from inside. We look forward to seeing some more new faces in the future.

Tom Boles, President

Changes in the BAA office

We are sorry to have to tell you that Patricia Barber, the Association's Assistant Secretary, has decided to move to pastures new after nearly 18 years with the Association. Pat's friendly face has been visible at most Out of Town meetings and she was always present and helpful on the exhibition stand at Astrofest. She has made many friends in the Association and will be sorely missed. Pat has informed us that

she intends to stay in contact with her many friends by attending future meetings. Council would like to thank Pat for all her help and assistance in the past and wishes her the very best of luck for the future.

Prior to this, at the last Ordinary Meeting in London I also announced the departure of Ann Davies from the office. Ann has been working part-time with the Association for several years and her friendly manner and helpfulness will be very much missed. Ann has taken up a position nearer her home to ease the load of travelling into London.

The Association is pleased to welcome Jean Felles to the role of office manager in Burlington House. Jean will also be taking over the responsibilities of the Assistant Secretary following Pat's departure. Jean is an active observer, especially of solar eclipses, and regularly



A new face in the BAA office: Jean Felles

attends Crayford Manor House Astronomical Society and the BAA Winchester weekend. She joins the office at a key time when new IT systems are about to be installed. She has a challenging time ahead and we all wish her good luck during this busy pe-

riod. We are also in the process of recruiting for an assistant for Jean and we hope to be able to make an announcement in the near future.

Tom Boles



Leaving: Patricia Barber (left) and Ann Davies



Mars Section

Observing Mars in 2005

Mars will be at perihelic opposition again on 2005 November 7 when its disk diameter (just exceeding 20 arcseconds at closest approach) will be nearly as large as it was in 2003. It will however be much higher in the UK skies this year, and I hope that as many members as possible will support the Section with their visual and CCD observations.

Mid-spring in the southern hemisphere of the planet, $L_s = 225^\circ$, is reached in the first week of June. With a disk diameter of 8 arcsec by then, it is time to start observing. The period from martian southern spring till midsummer is that in which large dust storms have often developed in the past. The 2001 opposition witnessed a seasonally very early planet-encircling event comparable only with the great storm of 1971. The seasonally latest such storm to begin was that of 1924 at $L_s = 311^\circ$.

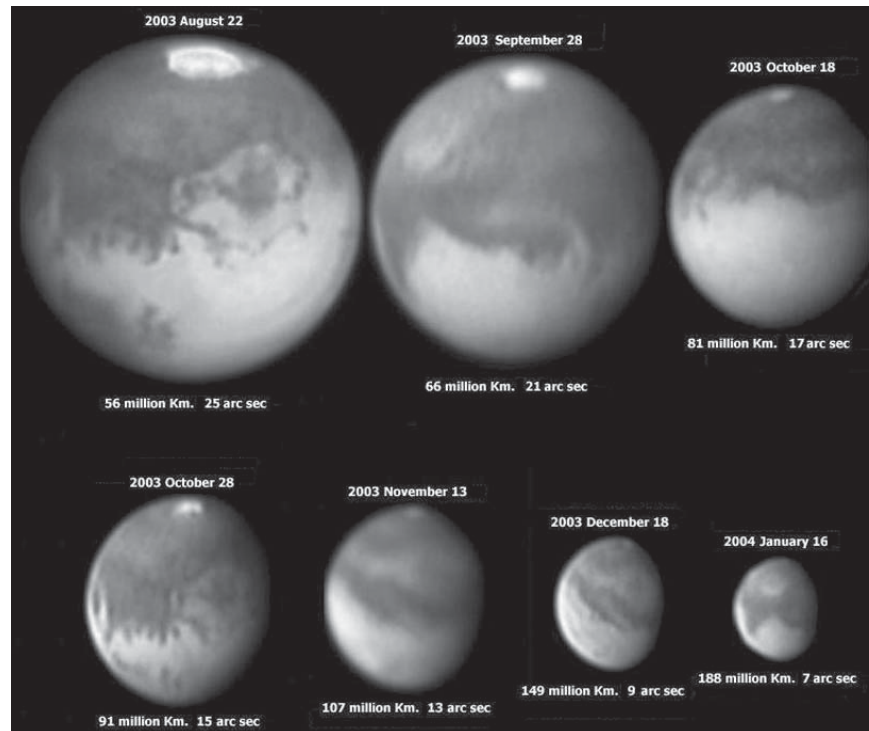
We shall be well-placed to record the recession of the S. polar cap during 2005, although only a few early observers will have caught it at the start of spring. In terms of seasonal date at opposition it will be later in the martian year than in 2003. The most similar past oppositions from each 15- or 17-year 'cycle' during the history of our Section are 1894, 1911, 1926 (the closest in seasonal date), 1941, 1943, 1958, 1973 and 1990. (For the last three of these, L_s at opposition was 329, 307 and 340° , respectively.) The various reports upon the great 2003 opposition (<http://www.britastro.org/mars>) and the previous oppositions mentioned (all of which are described in detail in *Mem. Brit. Astron. Assoc.*, 44 (1999)) give a very good idea of what observers should look for in 2005.

Observations should be sent to the Director at frequent intervals. He will supply report forms to those requesting them. The Section programme is fully described in the *BAA Observing Guide* (obtainable cheaply from Burlington House). Maps of the planet

can be found in the *Guide*, at our Section website, and in other sources such as *Norton's Star Atlas*.

The rapid decrease in the apparent disk diameter after opposition is well illustrated by the accompanying CCD images from 2003. Make the most of the period from 2003 July to 2006 January, during which the disk diameter will exceed 10 arcsec. Good observing!

Richard McKim, Director



CCD images of Mars by Damian Peach, with dates, distances and diameters shown. (2003 August 22 with a 25cm Schmidt-Cass. (f/55) on La Palma, the rest with a 28cm Schmidt-Cass. (f/31) from the UK.)

'Notes on the phase anomaly and markings of Venus'

Alan W. Heath & Edward Ellis

Erratum

We regret that a print preparation error removed part of a paragraph at the junction of pages 81 and 82 in the above paper in the *April Journal* [*J. Brit. Astron. Assoc.*, 115(2), 79 (2005)], thereby destroying the sense. The missing part should read as follows:

'... Nothing has been found to enlighten us about the nature, quality and trans-

mission qualities of this filter. It is tantalising to equate it with the modern Wratten 15 (yellow), the results of which seem to be very similar. Tables 1 and 2 compare the theoretical date of dichotomy with that obtained by the BAA Mercury and Venus Section...'

We apologise to Alan Heath and Edward Ellis, and to the readers of the paper, for this error. *Editor.*

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Aurora Section

2005 January

This month was geomagnetically very active. Only January 06, 09, 26 and 27 were quiet. Major magnetic storms took place on 07/08, 17, 18, 19 and 21/22, and stormy conditions were also observed on 01 to 04, 11 to 15 and 29.

Details of the daily planetary magnetic index Ap provided by the GeoForschungsZentrum, Potsdam, showed that it exceeded the minor storm level of 30 as follows:

| | | | | | | | | | |
|------|----|----|----|----|----|----|----|----|----|
| Date | 02 | 07 | 08 | 12 | 17 | 18 | 19 | 21 | 22 |
| Ap | 37 | 40 | 36 | 32 | 58 | 84 | 60 | 66 | 33 |

A minor magnetic storm lies in the region of Ap= 30–50 and a major storm between 50–100.

A storm sudden commencement was noted on January 09 before a slow rise in magnetic activity, and at the start of the major storm on 21/22.

Repetitive geomagnetic activity with increasing severity has been noted in the following three series:

1. Aug 10 Sep 06 Oct 03 Oct30
Nov 25 Dec 22 Jan 17
2. Oct 25 Nov 20 Dec 17 Jan 12
3. Jul 25 Aug 21 Sep 16 Oct 13
Nov 09 Jan 02 Jan 30

These series indicate long-lasting active zones on the Sun that affect the Earth with every solar rotation.

The major magnetic storm of Jan 21/22 generated coronal and other overhead auroral structures over Scotland and northern England. Aurora was seen all night and was visible as far south as the Midlands. 21 UK observers reported the event. Jay Brausch in North Dakota saw only a glow and an arc low down on his horizon. Aurorae with rays were seen by several observers from Scot-

land on January 17/18 and 18/19, with glows or unidentified forms by single observers on 07/08, 22/23, 27/28 and 28/29.

Lars Poort at Uummannaq in Greenland reported coronal structures on 01/02, 02/03, 06/07 and 18/19, with active aurora on 10/11 and 12/13. Des Loughney flying the North Atlantic observed a low quiet arc south of Greenland on 10/11. Jay Brausch recorded rayed aurora on 07/08 and 10/11, with quiet glows and arcs on 01/02, 14/15 and 16/17.

With respect to the event of January 21/22, it is reported that the solar wind reached a velocity of 1000km/sec with a density of up to 40 particles/cubic cm. The north–south component Bz of the interplanetary magnetic field fluctuated between –30 southwards and +40 northwards.

2005 February

Our observers recorded a period of geomagnetic disturbance from 07 to 11 February. Further periods of disturbance took place between Feb 16–19 and from 24–28. There were no major transient events but active conditions prevailed, particularly on the evenings of Feb 07, 08 and 16, but the results depended on the latitude of the observer and the type of instrument involved.

Ian Brantingham near Banff, Scotland, and Jay Brausch at Glen Ullin, North Dakota, both observed auroral glows and quiet arcs at low elevations on February 06/07. Ian saw green and red glows and rays on 07/08 while Lars Poort at Uummannaq recorded an active flaring overhead coronal rayed event. On Feb 08/09 Jay noted quiet glows and arcs to a maximum elevation of 5° and rays to 10°. Jim Henderson near Aboyne and Ian both observed a low elevation quiet glow while Jay noted similar diffuse forms. On 16/17 Lars noted an active homogeneous band to his south, bearing in mind that he lives north of the auroral oval. On 17/18 John Owen of Aberdeen reported that the Aboyne weather camera recorded the presence of an auroral glow. Lars completed the month by experiencing a coronal aurora on February 25/26 and active multiple rayed arcs to his north on 27/28.

Observers generally reported a quiet month but cloud conditions interfered with the detection of aurora. Alastair Simmons at Milngavie experienced 21 overcast nights, Fiona Vincent at St Andrews recorded 18 and Alastair McBeath at Morpeth 14 nights overcast. Their respective averages for the last 10 months were 24.3, 17.9 and 15.5 overcast nights per month. According to RAF Kinloss the Moray coastline is the most cloud-free zone in Scotland, and according to the US Air Force, North Dakota is the most cloud-free location of all of our regular observers. Lars Poort reports that it has been very cloudy in Greenland this winter and that there has been a lack of winter sea ice at Uummannaq.

Ron Livesey, Director

Harold Ridley and a cometary connection

Comet D/1819 W1 (Blanpain), 2003 WY25, and the Phoenicid meteors

A recent IAU *Circular*¹ reported that there appears to be a link between a newly-discovered asteroid, 2003 WY25, and Comet D/1819 W1 (Blanpain). This is interesting in itself, but even more remarkable is that the comet, now classified as disappeared (hence the ‘D’ in its designation), had been proposed as long ago as 1957 by the late Harold Ridley² to be linked to a strong meteor shower observed in 1956 and now called the Phoenicids.

This splendid display of meteors was observed from various places in South Africa on 1956 December 5. Maximum activity occurred during the period 19h:00m to 20h:00m UT, with hourly rates varying amongst different observers from 20 to 100. Notably the meteors were very bright, with suggestions that this was a major event.

Based on the tracks of 40 meteors plotted by S. C. Venter of Pretoria, an approximate radiant of RA 15°, Dec –45° was derived, placing it near β Phoenicis. Prior to 1957 no major meteor shower was known to emanate from that area of sky at that time of year.

Parabolic elements by Harold Ridley for the orbit of the stream suggested a possible relationship to Comet 1819 IV Blanpain (the former designation, as quoted in the 1957 announcement). The link was somewhat inconclusive due to lack of a precise position of the radiant and also the absence of a determination of the velocity of the meteors.

A later analysis of the 1956 shower by Harold Ridley in 1962 showed an average magnitude of 2.39 based on 61 meteors with many exploding fireballs. No prominent

meteor shower has been seen since in this part of sky and near the anniversary of the 1956 event, although some groups have reported weak activity with maximum ZHRs of 5 or less.

The object 2003 WY25 was initially thought to be an asteroid of about magnitude 18 when found by members of the Catalina Sky Survey on 2003 November 22. Backward integration of the orbit resulted in M. Micheli and P. Jenniskens suggesting a link to Comet D/1819 W1, which was subsequently investigated by B. G. Marsden of Harvard–Smithsonian Center for Astrophysics. Various adjustments have satisfactorily linked 10 of the 13 observations of the comet made at Paris, Bologna and Milan between 1819 December 14 and 1820 January 15.

Further investigations will no doubt take place with regard to the proposed candidate for the previously lost comet but it is gratifying to see that one of the Association’s *Circulars* of as long ago as 1957, and the vital contribution by the observers in 1956, have played an important part in the work to date. Above all, the publication of the results on the meteor shower by the late Harold Ridley, who was no doubt known to many readers, was a clear example of his valuable activity on behalf of the Association.

Guy M. Hurst

- 1 Green D. W. E. (ed.), *IAU Circular 8485* (2005 February 13)
- 2 Merton G. (ed.), *BAA Circular 382* (1957 February 7)



Solar Section

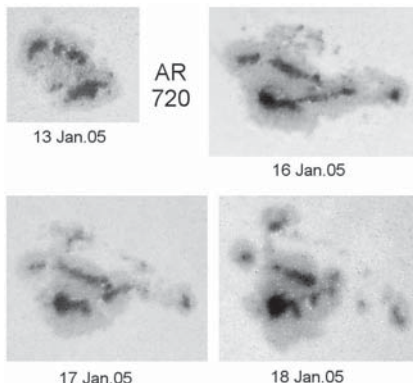
2005 January

The month was dominated by one of the largest sunspots seen for many years; as Ken Medway remarked, it rivalled the great spots seen in 1946, 1947 and 1989. It was first seen on January 12 as a Dac group at $+14^{\circ}/179^{\circ}$ with an area of 380 millionths, situated half way between the eastern limb and the CM. It comprised three close irregular penumbral spots and a couple of other smaller nearby spots. By the next day, the group had grown almost by a factor of three to an area of 940 millionths and was now a single irregular penumbral spot with many umbrae within it, the outline of the penumbra resembling the shape of the Isle of Wight. This single penumbral spot grew further on Jan 14 to cover an area of 1290 millionths and then to 1790 millionths on Jan 15 when it was a type Ekc and close to the CM. On both these days, the shape of the main spot changed, as did the number and position of the many umbrae. By Jan 16 the spot had grown further to 1880 millionths and the shape changed slightly from the previous day, with 4 main umbrae. By January 18, the main spot had decayed such that there were now several small penumbral spots in the leading and following group locations; the largest penumbral spot was towards the following portion of the group. Its area was estimated to be 1340 millionths.

The large spot was a naked eye object from January 13 to 19.

Hydrogen alpha

On January 4, a long filament was seen in the NW quadrant resembling a 'lazy S'-shaped configuration, with an estimated length of just short of the solar radius.



White light image showing the development of the large spot group AR 720. Peter Paice, Belfast.



H-alpha image showing a 4B type flare of X-ray class X3 around the spot group AR 720. 2005 Jan 15, 22:40UT. Monty Leventhal, Sydney, Australia.

On Jan 16, the large spot group (AR 720) appeared as a complex tangle of bright and dark sinuous lines. A possible flare appeared at the E end of the group at 13:05 UT – a brightening spot next to an umbra, becoming a bright line at 13:10 UT. Many small arch prominences were seen down the E limb. A large arch was also seen on the NW limb.

On Jan 18, a small detached prominence at $E 15^{\circ}$. On Jan 19, a high 'spike' prominence at $E 10^{\circ}$. On Jan 23, a minor arch-shaped prominence eruption was seen on the NW limb at 13:00 UT. Small prominences were also reported on January 08, 13, 23, 24 and 27.

2005 February

The large naked eye Ekc group first seen in mid-January rotated onto the disk on February 07. This time it was a small Hsx spot with an extensive area of faculae surrounding it at $+16^{\circ}/180^{\circ}$, and a nearby Csi group at $+09^{\circ}/186^{\circ}$. On Feb 08 it clearly dissolved into two spots, one at $+12^{\circ}/180^{\circ}$, the other at $+09^{\circ}/183^{\circ}$. As they were less than 10° apart they were counted as one AA of type Eso. The group gradually decayed after Feb 10.

On Feb 08, a large penumbral spot of type Hsx had rotated over the E limb at $-08^{\circ}/153^{\circ}$. The next day another spot of type Hax rounded the E limb at $-03^{\circ}/135^{\circ}$, a single spot, looking quite inert.

Feb 12 was the most active day of the month which saw three AA's roughly at the

same latitude, all in the eastern hemisphere. The group nearest the CM was of type Hax at $-09^{\circ}/154^{\circ}$ with an area of 240 millionths, and was a naked eye spot. On Feb 15 it was of type Dao but although smaller at 150 millionths, was still naked eye.

The middle of the three groups was a type Hsx spot at $-05^{\circ}/137^{\circ}$. The eastmost group was the largest seen during the month. On Feb 12 it was seen as a type Dko spot at $-08^{\circ}/120^{\circ}$, with an area of 330 millionths and naked eye. On Feb 15 the main spot had grown and had several satellite spots, some being penumbral, to give an area of 460 millionths. The number of satellite spots had reduced by Feb 18, although the total area increased slightly to 470 millionths. The group then began to decay such that when it approached the western limb on Feb 21, it was of type Hax.

On February 13 a group of 5 spots developed at $+12^{\circ}/185^{\circ}$. By Feb 15 only one small spot was visible but surrounding it was a large area of faculae.

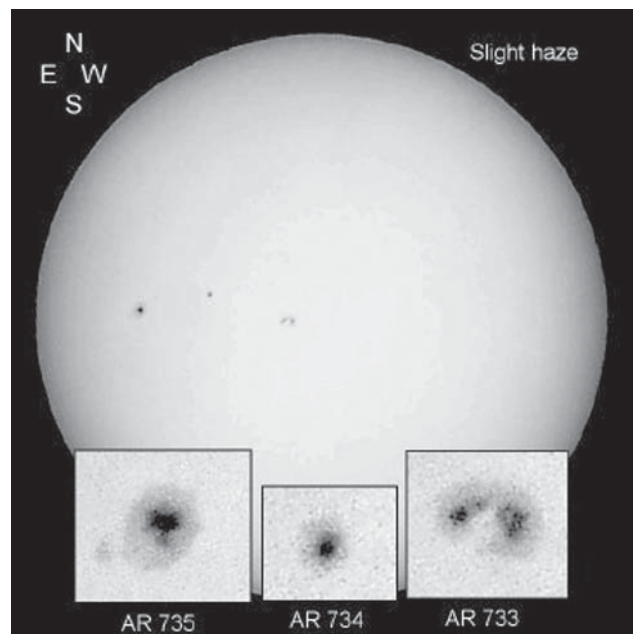


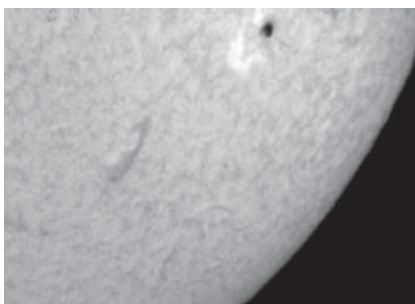
Image by Peter Paice taken on February 13 showing the trio of large sunspots.

On Feb 21 a bipolar group at $+12^{\circ}/113^{\circ}$ was observed. The next day it was close to the western limb, its leader being penumbral before crossing the limb.

Hydrogen alpha

Prominence MDF: 5.5 (7 observers)

The first 9 days of the month saw only minor prominences around the disk. On Feb 10 a roughly T-shaped prominence was seen on the E limb at -17° , markedly tilted southwards. On Feb 11 there were two arch-shaped prominences, one at $+14^{\circ}$ to $+17^{\circ}$ on the E limb, the other consisting of two



H-alpha image showing bright hydrogen, a filament and the active chromosphere. 2005 Feb 20, 09:53 UT. Eric Strach.

curved jets emanating from +01° and +05° and just meeting each other. There were streamers directed to the former prominence. On Feb 12 two tower-like structures were seen on the E limb between 0° and -12°.

The most remarkable prominence was seen on Feb 23 on the E limb. It consisted of one massive arch at +52° to +61° and an adjacent lower arch from +44° to +52°. On the following day the former had rotated to a more westerly position on the E limb at +60° to +66° with a small isolated remnant at +50°.

BAA sunspot data, 2005 January–February

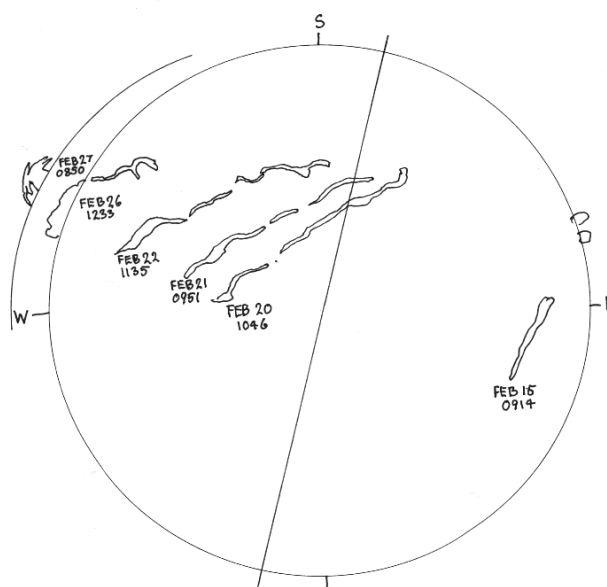
| Day | January | | February | |
|--------|------------|----|------------|----|
| | g | R | g | R |
| 1 | 2 | 40 | 2 | 24 |
| 2 | 2 | 34 | 2 | 19 |
| 3 | 1 | 24 | 1 | 13 |
| 4 | 1 | 20 | 1 | 16 |
| 5 | 1 | 14 | 2 | 23 |
| 6 | 1 | 16 | 4 | 42 |
| 7 | 0 | 3 | 3 | 37 |
| 8 | 1 | 14 | 3 | 40 |
| 9 | 1 | 17 | 4 | 49 |
| 10 | 2 | 21 | 5 | 56 |
| 11 | 2 | 35 | 5 | 66 |
| 12 | 2 | 46 | 5 | 70 |
| 13 | 3 | 52 | 5 | 66 |
| 14 | 3 | 65 | 3 | 51 |
| 15 | 3 | 68 | 3 | 59 |
| 16 | 3 | 68 | 3 | 55 |
| 17 | 4 | 78 | 4 | 58 |
| 18 | 4 | 73 | 3 | 41 |
| 19 | 3 | 61 | 3 | 39 |
| 20 | 4 | 73 | 2 | 23 |
| 21 | 4 | 54 | 2 | 27 |
| 22 | 3 | 38 | 2 | 24 |
| 23 | 2 | 27 | 1 | 14 |
| 24 | 3 | 33 | 1 | 11 |
| 25 | 3 | 36 | 1 | 9 |
| 26 | 2 | 30 | 1 | 7 |
| 27 | 2 | 27 | 0 | 0 |
| 28 | 2 | 26 | 0 | 0 |
| 29 | 2 | 21 | | |
| 30 | 2 | 25 | | |
| 31 | 2 | 32 | | |
| MDFg | 2.26 (51) | | 2.46 (51) | |
| Mean R | 37.75 (45) | | 33.55 (45) | |

On Feb 24 there was a low but extended prominence on the W limb from -7° to -15°, its southernmost part connecting with a filament. On Feb 27 a large arch prominence was seen on the W limb, most likely the long filament that had rotated off the disk.

A gently curved filament was seen on Feb 10 near the E limb to the E of the leading large spot group, extending southwards.

On February 11, Eric Strach made the following observation: Two very dark rather short filaments were recorded, running in an E-W direction just to the S of the centre large group. This was observed after 5 minutes heating the Daystar H filter, well before it was on band, which usually takes 12 minutes. Once on band, the filaments were very faint and soon no longer visible. As the centre spot group was quite inactive for most of the time, it could not have arisen from it. I now believe that the very dark filaments were due to line-of-sight velocity caused by the disappearing filament which was seen on the previous day and has not been seen since.

On Feb 15 a filament extended from the equator at a point some 55°E running in a SE direction to the E limb. The next day it seemed to consist of two parts, the northerly undulating, the short southerly part on the E limb. On Feb 19 it presented as one very long filament, extending from the centre of the disk in a southeasterly direction right to the 40°S parallel. Its central portion was faint. On Feb 21 it was further elongated, comparable with the length of the solar radius. On Feb 23 its length had increased further to about 1/4 of the solar radius. On Feb 25 most of it had crossed the W limb, only its lower portion remaining on the disk. Some of this portion appeared as a low prominence as described above. It was interesting that as this long prominence travelled across the disk it was clear that



Drawing by Brian Mitchell showing the progression of the large filament as it traversed the disk – note the effect of differential rotation.

North & south MDF of active areas g

| | MDFNg | MDFSg |
|----------|-------|-----------|
| January | 1.12 | 1.29 (34) |
| February | 0.70 | 2.02 (33) |

g = active areas (AAs)
MDF = mean daily frequency
R = relative sunspot number
The number of observers is given in brackets.

its orientation was changing due to the Sun's differential rotation.

As the 'trio' of spots approached the W limb, the chromosphere became active, arranging fibrils in columns and darkening occurring near the W limb. The image by Eric Strach shows the trailing group with surrounding bright hydrogen, a filament and the active chromosphere.

Mike Beales, Director

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Martin Morgan Taylor, Department of Law, de Montfort University, Leicester

Bob Mizon, Coordinator, BAA Campaign for Dark Skies

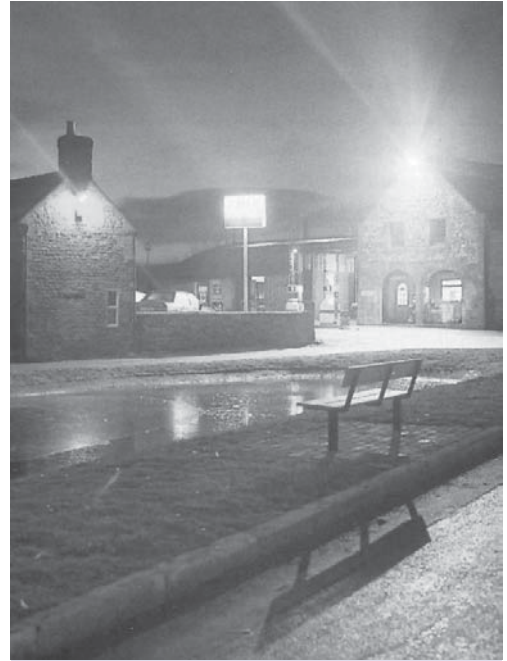
In the Queen's Speech of 2004 November 23, Her Majesty announced that the Government would proceed with the Clean Neighbourhoods and Environment Act, intended to cover a number of issues of increasing public concern. The Act was passed into law in April 2005. This stems from a chain of events over the last three years: the 'Night Blight' initiative of the Campaign to Protect Rural England (CPRE), adding its considerable voice to that of the CfDS; the Science and Technology Select Committee's deliberations on light pollution in 2003; the Office of the Deputy Prime Minister's decision to insert an additional light pollution clause in Planning Policy Statement 23; and the Department for Environment, Food & Rural Affairs (DEFRA)'s consultation paper (2003) on the subject.

The Clean Neighbourhoods and Environment Act 2005 makes light nuisance subject to the same criminal law as noise and smells. It applies to 'artificial light emitted from premises so as to be prejudicial to health or a nuisance' (section 102, Clean Neighbourhoods and Environment Act, which amends section 79 of the Environmental Protection Act 1990).

All forms of exterior lighting can, if badly angled, cause two broad types of problem, namely light pollution and light nuisance. Light pollution can be defined as every form of artificial light which shines outside the areas it is intended to illuminate, including light which is directed above the horizontal into the night sky, creating the skyglow which has erased the stars over both urban and rural areas dur-

ing the last half-century. CPRE figures showed that light pollution increased nationally by 24% between 1993 and 2000 (<http://www.cpre.org.uk/campaigns/landscape-and-beauty/light-pollution/light-pollution-your-area.htm>). Bad lighting can also cause glare or other nuisance, for example by shining into bedroom windows. It is this second avenue of nuisance that is legislated for under the new Act. Light nuisance is often referred to as 'light trespass' in non-legal materials, but the distinction between nuisance and trespass is that trespass, in law, requires an intentional physical intrusion, and light has not been tested under the law of trespass.

On the face of it, the new law is welcome news for the thousands of sufferers of light nuisance. However, the Act provides for major exclusions listed in section 102(4), which exempts a wide range of public transport buildings (airports, harbour, railway or tram premises, bus stations, public service/goods vehicle operating centres), as well as lighthouses and prisons. Sports facilities are not excluded, however. Nuisance floodlights from neighbours are most definitely covered. However, there has been confusion as to whether street lighting (a significant source of light nuisance) is covered. DEFRA certainly intended to exclude street lighting from the new law's remit (Full Regulatory Impact Assessment of the Clean Neighbourhoods and Envi-



The kind of light which should now be actionable: a 'security' floodlight in the Peak District (photo: Countryside Commission).

ronment Bill, DEFRA, December, 2004 p. 67). Even so, the *Daily Telegraph* considered that street lighting would be covered ('Switch That Light off or Face a Fine', Charles Clover, *Daily Telegraph*, 2004 Dec 9, p.1.) Moreover, a member of DEFRA's bill team remarked '(a) nuisance can also only be caused by the emission of light from premises, and will therefore only apply to street lighting in exceptional circumstances.' (House of Commons Library Research Paper 05/01, p. 68, from personal communication, Wildy, DEFRA Bill Team, 21 December 2004, <http://www.parliament.uk/commons/lib/research/rp2005/rp05-001.pdf>.) The Minister of State, Alun Michael, commented on the unsuccessful amendment 57, tabled expressly in Committee to include street lighting: 'Rather than giving local authorities the theoretical ability to issue abatement notices on themselves, it is better to deal with light pollution from street lighting by other means. Modern lighting design can already provide street lighting that does not waste energy and directs light only where it is wanted. That is used increasingly when lighting is replaced and is common for new lighting schemes.' (Alun Michael, Standing Committee G 1, Feb 05, FN 42.)



Still permitted: the obtrusive floodlights of Poole Ferry Terminal, which cause most of the skyglow which has eradicated the stars over Poole Harbour (photo: CfDS).



However, local authority lighting such as that in car parks will definitely be covered as 'premises', so it is unclear as to why this justification has been used when it does not apply across the board to all local authority lighting. Perhaps the answer is that street lighting continues to be a major source of light pollution and nuisance. This is borne out by the large number of complainants suffering from new higher-powered street lighting. Whilst good schemes may be common, not all new schemes are good ones. The following sentiments of a Leicester resident, though choleric, echo across the country:

'My local council last week installed new street lighting along my road. My front bedroom is now bathed in permanent light and the shadows cast by my driveway gate reach the back of the house with light right into my back garden! I'm going to write to the council... though I doubt whether it will achieve anything, as councils these days seem to be able to do anything they like with MY money, with no accountability'.

The statutory definition does not expressly include streetlights, but neither does it expressly exclude such lighting. It is possible that a court may deem such lights to be covered, however, the path to such a judgment would be subject to a long and expensive appeal as to whether street lighting amounts to 'premises'.

The provisions are further diluted by the availability of the defence of 'best practical means' to light emitted from 'industrial, trade or business premises, or... the purpose only of illuminating an outdoor relevant sports facility'. (Section 103 (2b) inserting a new

section 80(8) (as amended) to the Environmental Protection Act 1990.) This archaic phrase means that the utility of such lighting trumps the nuisance if, and only if, all reasonable steps have been taken to abate it. This will involve consideration of location and the cost involved in reducing the nuisance. However, the question is, of course, where the line will be drawn in practice.

The result is that all consumer lighting is covered, but the inclusion of street lighting is dubious, and there is a general defence open to all business premises and sports facilities.

Complainants need to report the lighting to their local authority's Environmental Health Department, who will then have the same powers as for other statutory nuisances given under section 80, Environmental Protection Act 1990. That is, to issue an abatement notice, but the person served with the notice may appeal to the Magistrates' Court within 21 days (section 80(3)). Failure to comply renders a consumer party liable to a fine of £5,000, or a business party £20,000 (section 80 (5&6)). However, injured parties may take proceedings themselves in the Magistrates' Court under section 82, with similar penalties for non-compliance with an abatement order.

In the words of DEFRA, the new law 'provides a first step towards reducing light pollution, although the Act could not possibly have dealt with all sources of light pollution. The (Act) is designed primarily to give local authorities new powers to deal with anti-social behaviour that affects the local environment, and a new licensing scheme for lighting, for example, would have been out of

place in this particular piece of legislation' (private correspondence from Jon Lartice, DEFRA, Nobel House, 17 Smith Square, London SW1P 3JR).

This is an important step in what has been a long and arduous campaign, and is of great interest and utility to anyone concerned about an eventual environmentally sound lighting policy in the UK. However, it is not a 'quick fix' for the problems caused by mis-directed light, whether here below or in the night sky. The next steps for CfDS will be:

to target vigorously the kind of over-bright lighting which causes many of these problems, for example, the typical 500-watt domestic 'security' light, half as bright as the UK's brightest lighthouse, the Longstone;

to press for a coherent Government policy specifically including the night sky as part of the environment which DEFRA is charged to protect;

to continue to educate all concerned (the public, retailers, manufacturers and decision-makers) about the need to save energy and money while helping the environment, through sane lighting practices.

To contact the BAA Campaign for Dark Skies (CfDS), see the website

<http://www.dark-skies.org>

or write to:

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