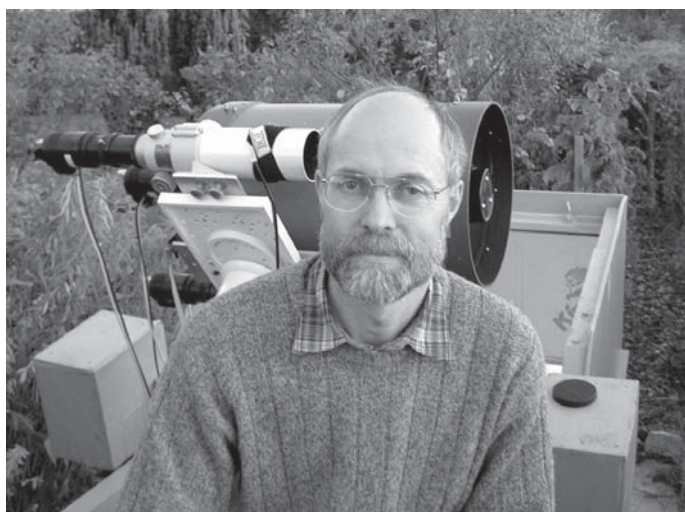


From your new President

Two years have flown by since Tom Boles became President of our Association and now I find myself heading up our organisation: it is a real honour for me. My thanks go to all of you who voted me in. Thanks also to Tom for all the hard work that he has put in on behalf of the Association during the past two years. We live in a time of many changes, which affect us all, and which seem to take place at an ever-increasing rate. Tom has presided over a number of new initiatives aimed at putting the Association on an even sounder footing for the future. I'll do my best to consolidate these as well as to ensure that we remain a forward-looking organisation.



As to my own background, some of you will no doubt know me of old as I joined the BAA during the 1965–'66 session at the age of 14 and have been around ever since! My interest in astronomy was kindled at a much earlier time, notably at the dawn of the Space Age back in 1957 when I recall going outside with my parents to spot Sputnik II as it passed silently across the night sky. An equally memorable occasion happened the following year when we were very late returning home from a family outing. We had to walk the half mile or so from the bus stop and in those days there was little if any light pollution. That particular summer night was also moonless and I think I spent most of the journey walking hand in hand with my parents but with my eyes averted upwards where I was dumbstruck by the view of what I later learned to be the Milky Way. The sky seemed to be awash with light and it was these early experiences that triggered a lifelong fascination with all things astronomical.

Telescopes and lenses have also been objects of intrigue for me. For quite some years, I had to make do with telescopes in the 30–40mm aperture range. My very first 'telescope', which I used back in

1959–1961, was made of solid brass and had a magnification of $\times 2.5$ as well as a large crosshair in the field of view. You might have guessed: it was an ex-War Department gunsight! Optically it was quite a masterpiece, and I still have the components to this day, one of which serves as an excellent Plössl-type widefield eyepiece. I had to wait until 1967 before I acquired sufficient wherewithal to be able to purchase the components for a 6-inch reflector, which I took delight in assembling.

As with many other BAA members, my interest as a young person was further stimulated by the many excellent books

written at that time by Patrick Moore, as well as *The Sky at Night* monthly TV programme. I distinctly recollect getting up early at about 7.00 am on Wednesday 15 February 1961 (then aged 9) to watch a live broadcast by Patrick on the occasion of a total solar eclipse. He was located in the path of

totality somewhere in Yugoslavia and to achieve the live transmission those days was quite some achievement by the BBC in conjunction with Eurovision. This was before the time of the first transatlantic TV transmission, which took place in the following year using the TELSTAR 1 orbiting relay satellite. As with many *Sky at Night* live TV broadcasts, the one that cold February morning fell foul of Murphy's Law (or Spode's Law as Patrick likes to phrase it), in that I think it proved cloudy since I cannot recollect seeing any view of the totally-eclipsed Sun on that occasion. As always, Patrick was full of enthusiasm despite the cold and this was very infectious and helped to make it a very special and memorable event for me.

There were other memorable happenings back in the '60s, which fuelled my own enthusiasm for 'outer space'. It was of course the space race, which culminated in putting men on the Moon back in 1969 as well as bringing them safely home. I wasn't alone in being interested in space and astronomy during this period, when membership of the Association continued to rise from about 3000 when I first joined, peaking at close to 6000

members in 1975 just after the *Apollo* programme was brought to a premature close.

During the last twenty or so years our membership figures have generally fluctuated in the range of 2700–3200 members. However, during the last few years we as an Association have been under increased pressure with membership falling even further, reaching a little over 2500 during 2002. Where the pressure on membership numbers originates from is not so obvious: it is probably a combination of many factors including the newly-burgeoning World Wide Web, and the ever-increasing number of astronomy-related magazines available on the newsstands or by mail order. My opinion, which is shared with others in the Association, is that our membership target should be around 3000+ since we need this level of support to keep costs per member at an acceptable level. Recently, John Mason spearheaded a campaign to advertise the BAA further afield and this proved successful in that we attracted several hundred new members. This year he has organised a further campaign, which hopefully should see us reach our goal. Go for it, John!

The BAA has acquired an international standing over the years, in part through the excellent *Handbook* under the direction of Gordon Taylor, and through the growing reputation of the *Journal*, thanks to Hazel McGee as Editor and Nick James as Papers Secretary. We benefit enormously from our wide cross-section of members both here in the UK and across the world. It is *your* excellent and varied contributions which make the *Journal* such a treasure trove. Our website is also now a great resource and Callum Potter has plans to improve this still further. Indeed, several of our new initiatives have blossomed of late, including the Observers' Workshops and 'Back to Basics' Workshops designed for beginners and others with a general interest in astronomy. Watch this space for more on these and other initiatives we have planned in the near future.

I should add that my professional background is as a research scientist working in the petrochemical industry. I would have liked to have made astronomy my career and although the opportunity presented itself on occasion, it wasn't to be. Maybe I would have lost the buzz that I get from things astronomical if my night-time hobby had become my day job as well.

So there you have it – your new President is now in the driving seat and you know a little more about him. Remember – if you attend any of the various meetings or workshops we hold throughout the year and you haven't had an opportunity to meet me before now, then do feel free to introduce yourself: I'd love to chat and hear how you yourself became involved in astronomy.

Richard Miles, President



Saturn Section

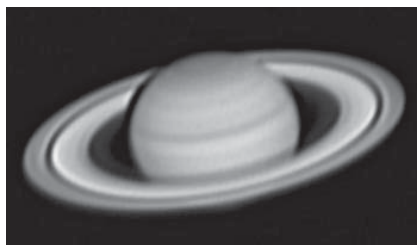
Saturn observers at opposition are rewarded with a ring-side view

The planet Saturn arrived at opposition in longitude on 2005 January 13d 23h 06m. With the southern face of the magnificent ring system tilted at almost -23° towards Earth, coupled with an especially favourable set of circumstances pertaining to the viewing geometry of the Saturn system, Sun and Earth, a wonderful opportunity was presented to view the 'opposition effect', i.e. the apparent surge in the brightness of the rings, at its very best.

The evening of Thursday, January 13 was a cold one at the Director's observing station at Ripon, North Yorkshire, with a frost but broken cloud, offering good clear spells in which to train a 150mm Maksutov-Cassegrain on Saturn. Observing from 22h UT, the Director was immediately struck by the pronounced brilliance of the ring in comparison to the dull features of the globe. At the eyepiece of his 400mm Dall-Kirkham Cassegrain at Upper Benefield, Dr Richard McKim, with many years' experience of observing Saturn, reported 'The striking thing was how bright the rings were, and by comparison, how dull the globe. Even the Equatorial Zone looked very dull indeed... I have rarely seen it so dusky.' Conditions at Upper Benefield were good, with seeing rated at II on Antoniadi's scale and transparency excellent, allowing a magnification of $\times 400$ to be used.

Meanwhile, observing from New Earswick near York, Dave Hunter remarked 'I was astonished at the view, the dim globe and glowing rings were a sight never to be forgotten. Indeed, rather like one's first view of the planet.' From Cockfield in Suffolk, Martin Mobberley commented 'the rings were dazzlingly bright at precise opposition. The globe looked positively dim in comparison.' At Flackwell Heath near High Wycombe, Dave Tyler summed up the situation very nicely by saying 'the rings were positively glowing; they reminded me of a car number plate that reflects light back at the source'.

The professional community was well prepared to mount a campaign to catch the Saturn system exactly at the moment of opposition. Even the Hubble Space Telescope was scheduled to capture the event.¹ The alignment of the Sun, Earth and Saturn was so precise, that as the Earth passed through inferior conjunction as seen from Saturn, a hypothetical observer stationed above the planet's cloud tops could have watched the Earth transit the exact centre of the Sun! Minimum phase angle occurs in cycles of 15 years for Saturn and hence the next transit of the Earth as seen from Saturn will not take place until 2020, but the next central transit will be in 2049.



Saturn imaged by Martin Mobberley using a 250mm refl. & Baader UV-IR blocking filter with Philips ToUcam Pro at 10 fps. Processed in Registax/Paint Shop Pro. *Left:* 2004 October 1, 04h 47m UT. From the early part of the 2004–'05 apparition, this image shows what may be considered to be the 'normal' contrast of the globe in comparison to the rings. *Right:* 2005 January 13, 22h 48m UT. Saturn at opposition. Note the dull aspect of the globe compared to the bright ring. *M. P. Mobberley.*

At the opposition of 2005, an absolute minimum observable solar phase angle of 0.02° was achieved. Gordon Taylor has kindly supplied dates and times for the remaining oppositions of Saturn in the first decade of the 21st century, as follows:

2006	Jan 27d 22h 48m UT
2007	Feb 10d 18h 42m UT
2008	Feb 24d 09h 48m UT
2009	Mar 08d 19h 53m UT
2010	Mar 22d 00h 37m UT

The opposition of 2006 will present a favourable opportunity to watch for the 'opposition effect', but with subsequent apparitions the inclination of the rings will continue to close, as the next ring-plane crossing draws near. In fact, the opposition of 2010 will present the north face of the ring for the first time since 1995.

As for the mechanism that causes the apparent surge in the brightness of the ring, the

previously accepted theory of 'mutual shadowing among well separated ring particles' cannot account for the well documented increase in luminosity. The presently accepted theory advanced by Michael Mishchenko and others, is that the 'opposition effect' is a result of 'coherent backscattering of light from the regolithic layer of sub-micrometer sized ice grains' which coat the particles that constitute the rings.² It is argued that the lesser the solar phase angle at opposition, the greater in intensity will be the resulting enhanced intensity cone in the backscattering direction.

David Graham, Director

- 1 *Hubble Space Telescope Daily Report* no. 3376, NASA, 2005. The telescope's WFPC2 was to be used to observe Saturn's moons Janus, Epimetheus, Mimas and Enceladus.
- 2 Mishchenko M., *Astrophysical Journal* Pt 1, **411**(1), p351–361

Aurora Section

2005 July

A magnetic storm developed on July 9, reached a peak on the 10th and after declining somewhat on July 11 burst forth again on 12 and 13, to decline on July 14. The daily planetary magnetic indices provided by the GeoForschungsZentrum at Potsdam were respectively 24, 57, 21, 40, 31 and 6. There was a storm sudden commencement (SSC) early on July 10.

A second active period began with an SSC at the beginning of July 17 followed by storm conditions on 17 and 18. The Ap values were respectively 22 and 24.

More activity took place on July 20, 21 and 28 with Ap values of 20, 21 and 23. An SSC was reported late on July 27.

Our own magnetic observers followed the above pattern of activity particularly in the period July 9 to 14. The records compared well with British Geological Survey observations at Eskdalemuir on our longitude.

Jay Brausch at Glen Ullin, North Dakota, was the only observer of auroral activity in July. He recorded glows, arcs and rays on the nights of 8/9, 9/10, 11/12, 12/13, 15/16, 17/18, 20/21, 27/28 and 29/30, but only glows and arcs on 28/29. The activity of 12/13 in the night was replaced by a display of noctilucent clouds in the early morning. The most active auroral night was that of 17/18 which included multiple flaming patches reaching a maximum elevation of 50° .



Some 201 observations of noctilucent clouds (NLC) worldwide were received in July. NLC were noted in Scotland and Northern Ireland on the nights of July 1/2, 2/3, 4/5, 6/7, 8/9, 10/11, 11/12, 12/13, 15/16, 16/17, 18/19, 19/20, 20/21, 21/22 and 23/24. They were seen from England and Wales on 1/2, 2/3, 6/7, 7/8, 10/11, 11/12, 14/15, 16/17, 18/19, 19/20 and 29/30. Activity was seen from the English Channel on 6/7, Norfolk and Surrey on 16/17 and an unconfirmed report on 29/30 from London. Our Danish observers recorded sightings on 3/4, 4/5, 9/10, 10/11, 13/14 and 21/22.

Jay saw faint NLC on 4/5 and the display after the aurora on 12/13. The most widespread displays in Europe and the UK were on 6/7 and 16/17 when 19 and 17 observations were received respectively.

Tom McEwan is to be thanked for the work of processing the numerous incoming NLC reports in spite of professional and family commitments.

2005 August

Following upon an SSC in the early morning there was a severe magnetic storm on August 24, with the planetary magnetic index Kp reaching a maximum of 9. There was a further storm in the evening of August 31 when Kp peaked at 7. Both were well detected by our observers. Active conditions occurred on August 6, 10 & 13 and from 16 to 19.

Self-recording magnetometers are operated by Tony Rickwood at Ullapool, Jim Henderson at Kincardine O'Neil, David Pettitt at Carlisle and Karl Lewis at Saltash. Suspended manually-read magnetometers are operated mainly in the evenings by Ron Livesey at Edinburgh, Mark Green at Trelogan (North Wales) and Howard Miles at Pityme in Cornwall. The observations are intercompared with magnetograms provided by the British Geological Survey observatory at Eskdalemuir, with the international planetary indices obtained from the GeoForschungsZentrum at Niemegk, and the Services des Indices Geomagnetiques at St Maur des Fosses Cedex, France. Due allowance is made for variations in latitude, the characteristics of individual instruments, local anomalies and times of observation. Taking all into account our observers usually agree when the Earth's magnetic field has become very disturbed or reached storm conditions.

Notwithstanding magnetic activity in August, British aurorae were conspicuously absent from the record. Ian Brantigan near Banff recorded glows arcs and rays to an elevation of 15° between 01:15 and 02:00 UT on the night of August 24/25. On the same night Dave Gavine at Edinburgh saw quiet glows and arcs to an elevation of 10° between 21:25 and 23:00 UT. Laurence and Pamela Draper at Culbokie saw a quiet homogeneous arc to an elevation of 20° at 22:00 UT on the night of August 25/26.

On the other hand Jay Brausch at Glen Ullin, North Dakota, observed quiet glows, arcs or patches mainly in his morning hours on 15/16 and 27/28, with the addition of some pulsating on 25/26, 26/27 and 31/01. Glows and arcs were also accompanied by some rayed activity on 03/04, 04/05, 12/13, 13/14 and 28/29. The nights of 12/13 and 25/26 were said to be the most extensive.

A prominent apparition of NLC was seen by 5 British and Irish observers on the night

of August 02/03 comprising all forms. It was seen to an elevation of 85° at Morpeth by Alastair McBeath, and as far south as Wallsend. A lesser event was observed from Morpeth on 03/04. Another apparition was widely seen from Morpeth, Wallsend, Maghera, Clanfield (Hampshire) and London on August 07/08 comprising all forms. The last report came from Wallsend on 08/09.

R. J. Livesey, Director

Comet Section

Comet prospects for 2006

2006 sees the possible return of 26 periodic comets, several of which are likely to come within range of visual observation with moderate apertures. Potentially, the most exciting is the close passage of 73P/Schwassmann-Wachmann in May.

Theories on the structure of comets suggest that any comet could fragment at any time, so it is worth keeping an eye on some of the fainter periodic comets, which are often ignored. This would make a useful project for CCD observers. As an example 51P/Harrington was observed to fragment in 2001. Ephemerides for new and currently observable comets are published in the BAA *Circulars*, Comet Section *Newsletters* and on the Section, CBAT and Seiichi Yoshida's web pages. Complete ephemerides and magnitude parameters for all comets predicted to be brighter than about 21st magnitude are given in the International Comet Quarterly *Handbook*; details of subscriptions to the ICQ are available from the Director. The updated Section booklet on comet observing is available from the BAA office or the Director.

Hervé A. Faye discovered 4P/Faye in 1843 during a visual search with a small telescope at the Paris Observatory. It reached mag 5, though this has never been reached at subsequent returns. It is possible that this was a one-off caused by a slight reduction in perihelion distance from 1.8 to 1.7 AU following a close encounter with Jupiter in 1841. Several authors have suggested that the absolute magnitude of the comet is declining rapidly, but it reaches a similar magnitude at all favourable apparitions. This return is very similar to the 1991 return, when it reached 10th magnitude. We should be able to pick it up in the morning sky in July, and it reaches opposition on the border of Cetus and Pisces in late October. It is at its brightest in early November and slowly fades.

29P/Schwassmann-Wachmann is an annual comet that has outbursts, which in recent years seem to have become more frequent and were more or less continuous in 2004. At many recent outbursts it has reached mag 12. It spends the first half of the year in

Aries, reaching opposition in late November as it retrogrades on the borders of Taurus and Perseus. The comet is an ideal target for those equipped with CCDs and it should be observed at every opportunity. It is well placed this year and UK based observers should be able to follow it until the end of March; it should be possible to recover it again in July.

Horace Tuttle was the first discoverer of **41P/Tuttle-Giacobini-Kresak** in 1858, when he found a faint comet in Leo Minor. Nearly 50 years later, Prof Michael Giacobini discovered a 13th magnitude object whilst comet hunting, which was observed for a fortnight. Andrew C. D. Crommelin linked the apparitions in 1928 and made predictions for future returns, but the comet wasn't recovered and it was given up as lost. In 1951, Lubor Kresak discovered a mag 10 comet in 25×100 binoculars whilst participating in the Skalnaté Pleso Observatory's program of routine searches for comets. After further observations the object was identified with the lost comet and a better orbit computed. At the 1973 return, which was similar to that of 1907, it underwent a major outburst and reached 4th magnitude, before fading and then undergoing a second outburst. Alternate returns are favourable and this, its 10th, is one of them. At the last two returns the comet has reached around 8th magnitude and it could do a little better this time. The comet could be visible from the UK from the beginning of the year until August. It begins the year retrograding in Orion, then swings northward through Taurus, Gemini, Cancer, Leo and Virgo. It should be at its best in June, when it is in Leo, but could be a binocular object from April.

45P/Honda-Mrkos-Pajdusakova makes its 11th observed return since discovery in 1948 (it was missed in 1959). It has had several close encounters with Jupiter, the most recent in 1983 which made dramatic changes to ω and Ω . The perihelion distance has steadily decreased and is now the smallest it has been for the last 200 years.

...continued on page 352



Solar Section

2005 July

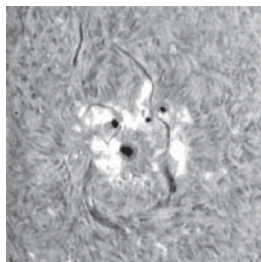
July was a month of stark contrast: high levels of activity in the first week, peaking with an R of 136 on July 4 and 5. We have not seen activity at this level since 2003 October. The activity then steadily declined and by July 17 it had dropped to zero, indeed the next five days saw a spotless disk. Activity then increased again and by the end of the month the R value was up to 82.

A group seen on the eastern limb on July 1 consisted of a collection of penumbral spots on July 4 when it was of type Dac at $+12^\circ/56^\circ$ with an area of 370 millionths. By July 5 just two irregularly shaped penumbral spots were seen but on 9th these had separated again to form a group with many penumbral spots each of roughly the same size, although the total area had reduced to 190 millionths. This group had changed little on July 10 and 11 but by July 12, the number of penumbral spots had reduced but those remaining had increased in size. As this group neared the western limb on 13th an elongated irregular penumbral spot was seen together with a small penumbral spot to its south. On

July 14 a single slender penumbral spot was seen on the limb.

One of the groups that had developed on the disk at the beginning of the month was seen as a Dao type at $-01^\circ/100^\circ$ with an area of 190 millionths. It comprised asymmetric leader and follower penumbral spots with a few spots in between. By July 4 this group had grown into type Eac with an area of 570 millionths and was a naked eye feature. At the leader part of the group was the largest penumbral spot with several umbrae within it while at the following position there were two similarly sized penumbral spots. Unusually, this group straddled the solar equator with spots in both hemispheres. The appearance of this group was similar on the following day, July 5, but on the next observation on July 9 only an Hsx spot was seen close to the western limb.

A new group AR 786 had rotated onto the disk on July 2 at mean position $+11^\circ/55^\circ$. It was a return of the very active group 775



Flare activity on 2005 July 8 at 09:47UT. *Eric Strach.*

($+10^\circ/54^\circ$, Dki) of the previous rotation and had retained its activity, giving rise to several flares. It crossed the CM on July 7 and remained very active throughout, being a naked eye feature on July 8 and 9. It crossed the W limb on 14th with a fanfare of loop prominences.

The near-equatorial group of the end of June was followed up in July. On the 2nd it was a bipolar group AR 783 at $-2.5^\circ/99^\circ$, Dko with a penumbral spot as leader and two penumbral spots as followers. After crossing the CM it developed intermediary spots and started to fade after July 9.

A new group formed on the disk on July 14 at $-10^\circ/12^\circ$, AR 790 Cso. It rotated round the W limb on July 15/16. After that the disk remained blank until July 23 when a new spot had formed on the disk at $+14^\circ/153^\circ$ as a Cao group AR 791. It crossed the CM on the 27th as a marked penumbral spot with several small satellite spots following it.

On July 29 a new group formed on the disk at $+15^\circ/110^\circ$ as Cso AR 793. On the same day a spot group rotated onto the disk at $+10^\circ/54^\circ$, Ckc type AR 792. It was very active on July 30. This group is a return of AR 786, which was very active in its previous rotation.

Hydrogen alpha

The prominence MDF recorded for July was 4.83 (9 observers)

Only small prominences were recorded in the first 5 days of the month and often on the borderline of the size of countable prominences. A more imposing prominence was seen on the E limb at $+39^\circ$ to $+44^\circ$ on July 6. It persisted in various forms until July 9. On the same day a similar prominence was seen in the SE at -49° and another on the W limb at -28 to -36° .

Loop prominences were seen on the W limb on July 13 at $+10$ to $+13^\circ$ as AR 786 was approaching the limb. The loops changed their appearance slightly through the



Prominence activity on 2005 July 16 at 13:15UT, overexposed to make the jet visible, see text. *Eric Strach.*

Mercury and Venus Section

ALPO award for Richard Baum

The Association of Lunar and Planetary Observers in the USA makes an annual award for dedication to the subject of lunar and planetary work. The award is named after the man who founded the ALPO in 1947, Walter Haas, and in 2005 it was given to Richard Baum.

Coincidentally, Richard joined the BAA also in 1947, and between 1979 and 1991 he directed the Terrestrial Planets Section with great energy before continuing to direct the Mercury and Venus Section until the late 1990s. Richard's observations and drawings are well known within both the BAA and ALPO, and he has a number of books to his name. He is a past Lydia Brown medallist of the Association. From his home in Chester, he uses a 10cm refractor for all his astronomical work.

The award citation reads: 'The Association of Lunar and Planetary Observers Walter H. Haas Award 2005: Richard Baum, who with the love and support of his wife Audrey, has been a tireless observer of the Moon and planets for over half a century. His work has produced a rich lore that has enriched the lives of fellow observers.'

I am sure that all the members of the Mercury and Venus Section and of the BAA will join with me in offering Richard our very



Portrait of Richard Baum by his son Julian

sincere congratulations on his receipt of this prestigious award.

Richard McKim, Director



observation time of 08:40 to 09:20 UT. Ken Medway reports seeing bright hydrogen moving along one of the loops (07:00 UT). They were still present on July 14 as AR 786 was rotating across the W limb. When first seen on the 14th at 07:45 UT, they were small jets of varied shapes. They became well-formed loops at 12:14 UT, which constantly changed their configuration throughout the observation time until 12:33 when seeing deteriorated.

On July 15 a lofty jet on the E limb at +24° at 13:25 UT had only a slender connection with the limb. At 14:37 it became detached, its shape altered and it reached a height of 200,000 km. On the same day a dense prominence was seen on the W limb at +39° to +46° at 13:20 UT. It was followed

until 14:41 UT during which time its structure showed constant changes.

It was still present on July 16 when a long jet emanated from its southerly part and extended as a low arc southwards towards a small prominence at +21° at 13:15 UT. (See image that had to be overexposed to make the jet visible.) The main prominence was still seen in diminutive form for the next four days.

Filaments

Many active spot groups contained intricate filaments among the bright hydrogen plages and the surrounding fibrils. This is demonstrated by the image of the very active AR 786 as it had just passed the CM on July 8.

There were the usual filaments that occurred independent of the spot groups.

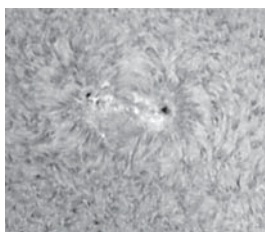
On July 6 a filament was hugging the W limb at +11° to +23°. The structure was seen the next day as a low hedgerow prominence that became a little higher on July 8. A long fragmented filament was seen on July 15, roughly along the 43° N parallel. On July 17 it straddled the CM, and was entirely in the W hemisphere on July 20 when it pointed to a prominence on the W limb at +40° to 45°.

2005 August

Sunspot activity remained at the same low level as in previous months with equal distribution in the N and S hemispheres. No spotless disk was recorded although no spots were seen in the N hemisphere from Aug 13 to 18.

The month opened with five spot groups on the disk, the most active being AR 792 at +12°/56°. Its four main spots were arranged as a quadrangle. This group was a return of AR 775 of the previous rotation. During its second passage across the solar disk it changed its configuration and showed more signs of activity when crossing the CM on Aug 3/4. On approaching the W limb it became a penumbral spot with only few attendant spots. It rotated around the W limb on Aug 9/10. It re-appeared on Aug 25, having survived the passage on the averted side of the Sun. Strangely, it assumed again the quadrilateral arrangement of the main four spots on Aug 28. It decayed on approaching the CM on Aug 30 and the next day was no longer seen.

The only southern group of Aug 1 was a penumbral spot at -12°/24° (AR 794). It developed satellite spots. It crossed the CM on Aug 6 and the W limb on Aug 12. It survived the passage on the averted side of the Sun and reappeared on Aug 28 as AR 805 at -09°/24°, a penumbral spot with two umbrae. On Aug 29 it remained unchanged but three fainter spots appeared further south at -19°/25°. As they were 19° apart from the



Bipolar group AR 800 imaged on 2005 August 24, 13:36UT. Eric Strach.

penumbral spot, they should be considered as a separate group.

From Aug 7 to 10 four spot groups, two in the N and two in the S, were seen widely separated to the W of the CM, whilst the E half of the visible hemisphere was blank. An innocent looking small spot was first seen on Aug 14 at -10°/216° (AR 798). As it

reached the CM on Aug 18, it developed small satellite spots. Within 24 hours it developed explosively into a bipolar group with two penumbral spots as Dso type. It dominated the solar disk and reached its maximum extent on Aug 21, rotating round the W limb on Aug 24.

A similar, though less dramatic event occurred in the N when a small single spot was first seen on the disk at +15°/157° (AR 800) on Aug 19. On Aug 21 it sported some 13 small attendant spots and on the 22nd it crystallised into a bipolar group Dai. As such it crossed the CM on Aug 23 and on the next day it had lost intermediary satellite spots, leaving a wide bipolar group Eao extending over 12°. As it remained so it had to be considered as two separate groups. It started to decay on Aug 26. The leader spot crossed the W limb on Aug 29. The follower spot had faded. It is very likely that this AR 800 is a return of AR 791 (+13°/151°) of the previous rotation.

Hydrogen alpha

The prominence MDF for August was 4.36 (8 observers).

Throughout the month small prominences were seen, often too small to be countable. A pyramidal prominence was seen on the E limb at +38° on Aug 3. On the next day it had thinned into a lightly curved jet.

On Aug 6 Eric Strach witnessed an eruptive prominence on the W limb at -21°. At 10:05 it was seen as very small but dense. At 12:00 UT it had changed into a low arc and at 12:20 it became a dense jet with a curved thin jet surrounding it from the S. It rapidly changed its configuration, becoming a complicated structure at 12:24. By 12:30 only two small ejecta remained at 12000 km distant from the limb, only a very thin curved jet connecting it to the limb. It disappeared by 12:40 leaving its small base at the limb. An observation at 12:48 still showed the two small ejecta.

Concurrently another prominence on the W limb showed rapid changes from two spikes at 11:35 to a large jet curving southwards and forming curved parallel jets as far as -42° at 12:48 UT. On Aug 7 two palm tree-like prominences remained in the region at -36 to -39°.

Mike Beales, Director

BAA sunspot data, 2005 July–August

Day	July		August	
	g	R	g	R
1	6	90	5	84
2	8	128	4	80
3	7	128	3	62
4	8	136	3	52
5	8	136	3	51
6	6	117	3	44
7	5	95	4	56
8	4	84	4	50
9	4	72	4	48
10	3	56	2	25
11	3	55	3	31
12	3	47	2	29
13	4	48	1	24
14	3	36	2	37
15	2	23	2	37
16	1	15	2	31
17	0	0	2	25
18	0	0	2	28
19	0	0	4	58
20	0	0	4	58
21	0	0	3	56
22	0	0	2	53
23	1	15	2	46
24	1	16	3	50
25	1	18	3	53
26	1	18	3	51
27	1	15	4	61
28	2	28	4	59
29	3	47	4	55
30	3	56	2	39
31	5	82	2	35
MDFg		2.98 (53)	2.96 (46)	
Mean R		50.54 (44)	47.28 (39)	

North & south MDF of active areas g

	MDFNg	MDFSg
July	1.59	1.29 (36)
August	1.53	1.48 (33)

g = active areas (AAs)

MDF = mean daily frequency

R = relative sunspot number

The number of observers is given in brackets.