Ordinary Meeting and Exhibition Meeting, 2002 September 21
held at the Cavendish Laboratory, Madingley Road, Cambridge

Guy Hurst, President

Ron Johnson, Nick Hewitt and Nick James, Secretaries

The President opened the eighth meeting of the 112th session, welcoming members to the Cavendish Laboratory, and asking for feedback as to whether this venue should be considered for future meetings. The time of year of the meeting was a further break with tradition. He also commented that there had been short talks and tours of the Cavendish museum during the exhibition, and invited comments on these. Mr Hurst regretted to announce that Leslie White, an active Association member who had held many Council positions including President 1978-1980, had died earlier in the month. He invited members to join him in a minute's silence.

The minutes of the May meeting were read by Dr Hewitt, and approved. The President reported the apologies of Mr Johnson, and announced on his behalf that no presents had been received. The proposal of 32 new members was announced, and the members present elected the 9 members proposed at the previous meeting. Mr Hurst expressed his pleasure at having met a number of new members during the exhibition, and having heard of their work. He invited other new members to introduce themselves after the meeting. Mr James reported that three papers had been accepted at the previous Council meeting:

The aurora 2001 by Ron Livesey
Photometry of the semi-regular variable and spectroscopic binary RR Umi by John Howarth and Kevin West
The bicoloured aspect of Saturn's A ring: Shedding new light on an old mystery by Tom Dobbins, Alan Heath and Valeri Dikarev

The President expressed his gratitude to those Association members who had assisted with organising the exhibition, in particular Nick Hewitt and Jonathan Shanklin, who were assisted by Tom Boles, Peter Hudson, Bob Marriot, Richard Flux, Geoffrey Johnson and Pat Barber. He also thanked the Cavendish team for their work, especially Alan Chapman, Harry Druiff and Bill Badcock.

The next meeting would be the Annual General Meeting, to be held at Savile Row on October 30. This would feature the presidential address *25 Years of the Nova/Supernova Patrol*. Finally, the President urged members to watch the BBC Tomorrow's World awards on September 25, when a well-known BAA figure would be honoured. Mr. Hurst then proceeded to award the Association's medals:

The Lydia Brown Award

The President presented the Lydia Brown Award to Bob Marriot. Primarily interested in historical work, Mr Marriot has become expert in 19th century instrumentation, acquiring an encyclopaedic knowledge of his field. He has published a great many papers, including most notably that on the 1925 eclipse, which was worthy of a full publication. He had offered great service both to the BAA, as projectionist and curator of instruments, and also to Northampton Astronomical Society.

Mr Marriot recalled the award of the Merlin medal to Roy Panther by Leslie White. He expressed his honour in receiving a second medal for Northampton.

The Steavenson Award

Kevin West received the Steavenson Award in recognition of his superbly accurate observation. Mr West's prolific observations, often to an accuracy of 0.2", were internationally recognised and of great professional value. Much of his work had been with X-Persei variable stars, which show little fluctuation, and require great dedication and patience.

In accepting the award, Mr West expressed his gratitude to those Association members who had inspired him.

The Merlin Award

The Merlin Medal was awarded to Mark Armstrong, who had previously won the Stevenson award in 1997 for his discovery of the first UK supernova. Since then, he had made the exceptional achievement of discovering 39 supernovae to date, many as faint as mag 19. Such objects are incredibly challenging to identify, and their discovery surely identifies Mr Armstrong as a world leader in this field. His work has come despite the competition from large teams of organised searchers who often

dishearten amateurs. The President believed that Mr Armstrong's work had undoubtedly raised the profile of UK amateur astronomy, which has always been dogged by the poor climate.

Mr Armstrong commented that it is always good to keep the past in mind, observing that the Merlin medal was first awarded to George Alcock, who later won it on two further occasions. It had since been received by Brian Marsden, Richard McKim and Richard Miles to name but a few. Mr Armstrong was honoured to be added to this list.

The Walter Goodacre Award

The most senior of the Association's awards, the Walter Goodacre Medal, was presented to Dr John Rogers. The President recalled a saying "Jupiter without John Rogers would be like Saturn without the rings!" An observer of the planet since the early 1970s, Dr Rogers had received the Merlin Medal in 1979. In 1987 he became Jupiter Section director, a post he has held ever since. His many papers had been published both in the BAA Journal, and more academic publications. He works in tracking spots on the Jovian surface, as well as more recently digital image processing.

Dr Rogers thanked the association for awarding him for an activity he found immensely enjoyable. He also thanked the members of the Jupiter section for forming such a superb team, successfully achieving professional class observation over a wide range of wavelengths.

Following the award ceremony, the President invited Martin Mobberley to deliver Sky Notes:

The September Sky

Mr Mobberley opened with the comet scene, displaying a light curve for Ikeya-Zhang from his May talk, commenting on changes to the magnitude estimates. After peaking in March, Ikeya-Zhang had continued to produce a number of surprises, including an anti-tail as it faded towards mag 9-10. The speaker illustrated this anti-tail with a number of images from June.

There were at least seven comets brighter than mag 14, and hence imagable by many amateurs. The speaker displayed a number of images by Michael Jäger from Austria, commenting that his images were of superb quality and prolific quantity, despite continuing to use film photography as opposed to digital equipment. 7P/Pons-Winnecke and 46/P Wirtanen continued to give a good show, and Mr Mobberley reported that the discovery of 2002O4 (Hoenig) had been the first from German soil since 1946, appearing to be a genuine miss by LINEAR. This comet would be too low for evening observation by late October, but would become a morning comet. Comet 2002O6 (SWAN) was currently at mag 6 and a good candidate for visual observation. This comet had been discovered by Suzuki from real-time data from the SOHO satellite observatory, but curiously named after the Solar Wind Anisotropy (SWAN) probe rather than the usual SOHO labelling.

Asteroid 2002NY40 caused a media stir when it passed within 10^6km of the Earth on August 18. It was the first 500-1000m class object to have passed this close since 1937. A number of images of the pass were shown, including one by Nick James, which had been taken through cloud from Chelmsford. Michael Jäger had produced an excellent image of the asteroid passing by NGC6863. Radar imagery of the object had been attempted, though little interesting surface feature had been revealed.

The hypernova in M74 had peaked in March at mag 12, and faded to mag 14 by the end of the month. It had not faded as rapidly as expected, and remained at mag 17 at the time of the meeting. Mark Armstrong had made several recent supernova discoveries, including 2002em, which was mag 18 at discovery, and most notably 2002ct, which at mag 20.1 was the faintest supernova ever discovered by an amateur. Tom Boles had discovered 2002eh at mag 16.

Moving onto planetary observation, Mr Mobberley opened with images of Uranus' moons by Ed Grafton. The speaker believed these to be the first amateur images he had seen resolving surface features on these moons. A composite image of Saturn had also been taken by Ed Grafton on September 17, achieving superb clarity using ten images with each of red, green and blue filters in turn. Saturn would be rising in the UK sky in the coming months, and with the rings at 63° they were near their highest possible tilt. Jupiter would also be rising towards the end of the year, and with Damian Peach now resident in Tenerife, impressive images were anticipated.

Mr Mobberley recommended the occultation of a mag 9 star, TYC 1402-01027-1, by Jupiter at 6am on 2002 November 16. The penumbral lunar eclipse of November 20 was not expected to be particularly spectacular, although on this occasion the Moon would pass close to the umbra, improving prospects. The speaker displayed a number of superb solar images by Ray Emery, which had revealed an impressive amount of detail in sunspots and flares. These had been recorded using a small aperture Chinese refractor and ccd.

A number of observers would be travelling to view the total solar eclipse of December 4, which would be visible across southern Africa, albeit very low in the sky. There would be very long shadows cast in one direction. To close, the speaker demonstrated a piece of eclipse simulation software by Association member Andrew Sinclair, which was available on the web.

Following the applause for Mr. Mobberley's lively and informative summary, the President welcomed Dr Richard McKim to review the work of the Mars Section.

Mars in 2001

Dr McKim started by reminding observers that the Martian opposition of 2003 would be one of the best opportunities to view the planet for many years, possibly many tens of thousands of years. This talk would first summarise the observations of the 2001 opposition, before moving onto prospects for 2003.

In 2001, Mars had been at declination 26° south, and hence only 10° above the horizon in Cambridge. This low altitude had hindered high resolution work. Imaging techniques had progressed tremendously in the past half-century, however, and the speaker summarised these by showing an image of the 1954 opposition by the great E.C. Slipher of the Lowell Observatory. This was an opposition which had been at similarly low altitude. The speaker went on to show an amateur image from 2001 with a 20cm instrument, which did not compare too unfavourably with an image by the HST. The improvement between the early professional image and modern amateur work was stunning.

In June 2001, the Martian year was at Ls=180, or the beginning of southern spring. (Ls, the areocentric longitude, is a measure of the Martian season, and is explained in the Association's *Observing Guide*.[1]) At this time the southern polar cap begins to become visible. Dust storms are frequently seen in the warmer southern spring and summer seasons of the Martian year, and this was the case in 2001. A storm blew up in the *Hellas* basin, and on June 26 spread beyond this locality. A second storm grew from a separate source in *Claritas-Daedalia*, on the opposite side of the planet, and the two rapidly merged to form the first planet-encircling storm for decades. The best estimate for the duration of the storm was 185 days, although such durations are difficult to measure accurately due to the subjective nature of when a storm is deemed to have cleared. The return of all surface features, or the restoration of the degree of polarisation to normal, were two possible criteria. The latter is a useful indicator of the structure of the Martian atmosphere.

The speaker speculated that the Martian climate might be undergoing short-term change, since a number of planet-encircling dust storms were observed in the 1970s: those in 1971, 1973, 1975, and two in 1977. Yet no such great events had been observed during the 1990s. Dr McKim speculated that 2001 might mark the start of another 'dusty' epoch. It could be argued that the decade in which *Mariner* and *Viking* probed the red planet was by no means typical.

Moving onto amateur observations, the speaker first referred to the cover of the 2002 June *Journal*, which featured several images by Ed Grafton from Houston. In this sequence, surface features are visible before the storm sets in, but are soon masked. In the centre-right image of July 31, the summit of *Olympus Mons* can be seen protruding through the dust. Damian Peach had taken images when Mars had subtended only a 4-5" diameter, and although the surface detail at first sight appeared modest, they represented a much greater resolution than Slipher had ever achieved when the small angular size was considered.

Measurement of the southern polar cap is an area where amateurs can contribute. The southern cap is highly asymmetric, and professional images from the HST are lacking in quantity, and often only available from a single CM longitude. Precise measurement was hindered in 2001 by haze surrounding the cap, as is often the case. Measurements shortly after Ls=180 had revealed close correspondence with data from 1988. After Ls=200, however, the cap retreated more slowly than in 1988, suggesting that the dust storm had preserved it. This is an indication that dust storms can affect the size of the polar caps.

As normality returned in October, it was observed that *Syrtis Major* was narrower than before. Also a new dark region had appeared close to *Solis Lacus*, which was itself reduced and reorientated. It is not uncommon for the Martian bedrock to become exposed during storms, or for dust to pile up against ridges.

In 2003, Dr McKim recommended all observers to take a look at Mars. Even those without telescopes could contribute useful observations of the naked eye colour of the planet. In 2001, the usual red colour had turned to a dull yellow as the storm progressed. Mars would be at declination 15° south next year, giving an altitude of 20-22° from the UK. At opposition, the Martian year would be at Ls=249.5, and it would be the closest opposition for many thousands of years. If there is another dust storm, it may be under way as early as 2003 May, so early observation was urged. It would be of interest to see whether the dusty conditions were returning.

The Association's programme for the opposition would include watching for dust, which is bright in red light, and can be distinguished from the surface, which is bright with a blue filter. The southern polar cap could be measured and sketched, most preferably with a red filter. Such drawings should be submitted at regular intervals. Observers should also keep an eye out for small changes in surface features such as *Solis Lacus*. The speaker urged observers to consider photographic observation as well as CCD imaging and sketches, both for their aesthetic value and the easy comparison they give with earlier observations.

In response to a question, Dr McKim noted that there was probably no need to look at variations in the Sun's output in explaining the variability in dust storms from year to year.

After the applause for Dr McKim's thorough account, the President invited Bob Marriot to play an amusing video clip featuring Tom Boles at an Association event three years earlier. The President then reiterated his thanks to all who had contributed to the organisation of the Exhibition Meeting, and reminded members that feedback would be particularly welcome. The meeting was then adjourned until the Annual General Meeting, to be held at Savile Row on Wednesday October 30.

Dominic Ford

References

[1] *Observing Guide*, BAA (2002)