Ordinary Meeting, 2006 January 25
held at New Hunts House, Guys Hospital, London Bridge, London SE1

Richard Miles, President

Ron Johnson, Hazel Collett and Nick James, Secretaries

The President opened the third meeting of the 116th session, and invited Mrs Hazel Collett to read the minutes of the previous meeting, which were approved by members. Mr Ron Johnson, Business Secretary, reported that no presents had been received. Dr Miles announced that ??? new members were proposed for election; he then put to members the election of those 80 [?] who had been proposed at the December meeting, and, this being approved, declared them duly elected. He invited any newcomers to introduce themselves to him after the evening's talks. Mr Nick James, Papers Secretary, announced that one paper had been approved by Council for Journal publication:

[insert paper details here]

Dr Miles announced that the next Ordinary Meeting would be held along with a Special General Meeting on March 22 at the present venue. Before then, the seventh in the Association's series of *Observers' Workshops* would take place at the Open University in Milton Keynes on February 25, and there would be a meeting of the Deep Sky Section on March 4.

The President then welcomed the evening's first speaker, Mr Martin Mobberley, to present his Sky Notes.

The January Sky

Mr Mobberley opened by noting that, during the meeting, Saturn and its rings would occult the mag 7.9 star BY Cancri, although the planet would be at a low altitude during the interesting early passage behind the rings. He announced that Hazel McGee had discovered a Near Earth Object (2006 AT3) by downloading and checking thousands of CCD frames from the Kitt Peak Spacewatch telescope. This was the third UK success using this public outreach facility, the first two being by Ken Pavitt and Roger Dymock. Moving on to planets, Mr Mobberley explained that Mercury would make a favourable appearance in the evening sky around Feb 24th, and he showed some fine crescent Venus shots taken in December by BAA member David Arditti. Venus was now moving into the evening sky. Despite Mars still being below 10 arc-seconds in size Damian Peach was continuing to secure high resolution images of the red planet. Saturn was especially well placed in the January evening sky and Mr Mobberley urged members to watch the ringed planet on opposition night, in two days time, when the rings should appear very bright due to the Seeliger effect. Saturn would be travelling through the lower half of the Beehive Cluster over the coming weeks which should make a nice photo-opportunity. Staying with Saturn Mr Mobberley showed some recent spectacular Cassini images, including a shot of faint dust above the ring plane which might account for the spokes seen in the Voyager images of the 1970s. He also showed new Cassini images of Rhea and Dione. Jupiter was now observable again in the dawn sky, although it was painfully low down. However, again, David Arditti had persevered with the planet from his Edgeware location and obtained some images in the last few weeks. In Japan Hideo Einaga had discovered a new mid-SEB outbreak of white spots which was a development well worth following. Moving on to comets, a new one had been picked up by the ASAS patrol team and had been named after its discoverer Grzegorz Pojmanski, of Warsaw University. 2006 A1 (Pojmanski) had a similar orbital path to that of the famous Comet Bennett in 1970 but, unlike Bennett, would most probably not be a spectacular object by the time it came into northern skies. Comet 2005 E2 (McNaught) was still reasonably bright, at around magnitude 10, but very low in the SSW evening sky. A Centaur asteroid, similar to the famous object 95P/Chiron had been seen with a coma recently and thus would almost certainly be designated as a periodic comet. The object, 2000 EC98, was currently magnitude 14 in Virgo, despite being 13 AU from the Sun. Mr Mobberley drew members attention to the comet 73P Schwassmann-Wachmann, currently 16th mag and with an 18th mag fragment accompanying the comet. From the audience Mr Shanklin pointed out that this comet would be making a very close passage to the Earth in May, and some estimates predicted the largest fragment could be 6th mag, but a highly diffuse one degree across, in our skies at that time. Comet 2003 WT42 was also a CCD target in Ursa Major and Mr Mobberley expected 41P Tuttle-Giacobini-Kresak to rapidly brighten into amateur CCD range in the next month or two. Moving on to Supernovae, Mr Mobberley was pleased to announce that three more UK supernovae had been discovered since the last meeting, two by Tom Boles and one by Mark Armstrong. Tom had bagged the prestigious SN 2006A, the first supernova of the New Year, and was now only five away from his 100th supernova. Only two other individuals had their names associated with more supernovae on the IAU listings, namely the legendary (if abrasive) Fritz Zwicky and the US amateur Tim Puckett, who had just overtaken Zwicky's total of 123 discoveries. Mr Mobberley reminded members that the BAA and Mark Kidger were very keen on magnitude estimates of the active galaxy and suspected binary black hole candidate OJ 287 which might flare up this year and was situated near to the Beehive Cluster, not far from Saturn at the current time. He also reminded members that the Moon would be very favourably placed in our skies at the end of the first week in February, and throughout the year, attaining a declination of +28 degrees once a month. Moving on to

asteroids, Mr Mobberley showed recent images by Maurice Gavin, of Juno and Vesta, as well as an image and light curve of the BAA's own asteroid 4522 Britastra, secured by the President, Richard Miles. He also pointed out that asteroid 3697 Guyhurst would reach opposition around the start of April. Mr Mobberley then showed some results from last July's Charon Occultation in which a team from Paris had measured the diameter of Pluto's satellite as roughly 604 kms. As far as asteroid occultations were concerned, an event was actually taking place during the BAA meeting, that involving 3939 Huruhuta, and there were a number of other potential events over the next week. An occultation of a 15th mag star, by the trans-Neptunian body Varuna, on Dec 31st, had been clouded out. Once again though, Andrew Elliott had been successful, recording an occultation by 134 Sophrosyne on Dec 27th. Finally, Mr Mobberley looked ahead to March when there would be a deep penumbral eclipse of the moon and a partial eclipse of the Sun. Many BAA members were heading for the region of totality which would cross Libya, the Mediterranean and Turkey on March 29th.

Following the applause, the President invited Mr Chris Lintott of University College London to present the evening's second talk. Mr Lintott would be a familiar face to many members from his frequent appearances on the BBC's *Sky at Night*; on this occasion he would be talking about recent developments in cosmology.

Cosmology: Into the Unknown

[talk summary from CJL to be inserted]

After the applause for Mr Lintott's talk, the President invited the evening's final speaker, Mr Doug Ellison, to give an update on the activities of NASA's *Spirit Rover* on the surface of Mars.

The Spirit Mars Rover: An Update

After thanking Hazel Collett for inviting him to the meeting, Douglas Ellison began an update to the status of the Mars Exploration Rover Spirit showing a cartoon that compared Spirit to the 'Energiser Bunny', explaining that despite being designed for only 90 Martian days of operation, Spirit was still alive and conducting science after 734 sols.

As part of NASA's Mars Exploration pathway of 'Follow the Water' - Spirit was launched in the summer of 2003 toward Gusev Crater, a 150km wide feature that appeared to have acted as a lake in the distant Martian geological past, so in essence, Spirit landed on an ancient lake bed.

The speaker apologised to those who had not seen his talk in April 2005, but for brevity, and using what he called a 'road trip movie' of frames taken by Spirit's front hazard avoidance camera - he mentioned brief highlights of the first 400 days of Spirit's traverse from its landing site, to a nearby crater called 'Bonneville' and then 2.5km across the surface toward a set of hills called 'Columbia' and it's tallest peak named after the commander of the lost Space Shuttle Crew - Rick Husband.

Spirit found little evidence of the ancient water in which it went in search of, until arriving at the foot of 'West Spur' which juts out from Husband Hill, however low on power and with struggling mobility, Spirit slowly crawled its way to the top of West Spur, and by Sol 400 had reach a outcropping of rock called 'Larry's Lookout' where instruments showed the rocks to contain minerals that usually form in water, particularly Hematite and Goethite. At this point, an astonishing series of wind gusts cleared Spirit of much of the dust that had covered its solar arrays. From about 800 Watt Hours of power at landing, power levers dipped as low as 300 Watt hours before these cleaning events returned power to more than 700 Watt Hours.

The speaker then walked the audience through the drive toward the summit of Husband Hill alternating between the stunning panoramas that Spirit took at several points en route, and short driving movies that linked them.

By Sol 530, Spirit had reached the Summit of Husband Hill, and Mr Ellison tried to demonstrate the resolution of the panorama that was taken by demonstrating that it would require 32 of the largest computer displays available, or 3 Imax screens to show it at its full resolution.

To laughter from the audience, the speaker then suggested that Spirit might form member 0001 of the 'Mars Astronomy Association' and would be an active participant in the Lunar, Deep Sky and Meteor sections, showing images that had been taken with the high resolution 'Pancam' of Phobos and Deimos, the Orion Nebula, and possible Meteor Trails by virtue of the large power surplus that allowed Spirit to operate on fully charged batteries late into the night.

The audience then donned the anaglyph glasses with which they had been issued, and were shown stereo images that showed the 'Hillary' outcrop at the absolute summit of Husband Hill, and a stereo image generated from orbital imagery that showed the planned route from the summit to an large raised, flat, light coloured feature that scientists had called 'Home Plate' half a mile south of the Summit, and thru a series of route maps, the speaker showed the route Spirit had taken to a point approximately half way to Home Plate, finishing with imagery taken

at 5:19 am on the morning of the meeting.

The speaker then highlighted the longevity and scientific productivity of Spirit by comparing the design specification of 90 Sols, 600 metres driving and 1 full panorama, to its achievements at the time of the talk of 734 sols, 6096 metres, and 12 panoramas. He then took a map of central London, and by way of transposing the route that Spirit had driven demonstrated that it had, by pure chance, covered a route that would have taken it from the former meeting venue of the English Heritage Lecture theatre, to the new venue at King's College.

Before concluding with a beautiful image of a Martian sunset and the strange fact that terrestrial skies are blue with red sunsets whilst Martian skies are red with blue sunsets, Mr Ellison reminded the audience that Opportunity, Spirits twin rover, had been operating for just as long and even been even more productive scientifically on the other side of the planet, and hoped he would see many of the members at the Out of London meeting in April when he would be talking about Eagle, Endurance and Erebus, Opportunity at Meridiani Planum.

After the applause for Mr Ellison’s enthralling account, the President adjourned the meeting until March 22.

Doug Ellison, Chris Lintott and Martin Mobberley.