

# Ordinary Meeting, 2005 September 3

## held at The Cavendish Laboratory, Madingley Road, Cambridge

**Tom Boles**, President

**Ron Johnson, Nick Hewitt and Nick James**, Secretaries

### The September Sky

Opening with a summary of recent UK supernova discoveries, Mr Mobberley reported that there had been two since the last meeting. Tom Boles had made his 90th, 2005dj, in UGC 3545 on August 18 – his first discovery since April. In addition, the speaker was pleased to report that Mark Armstrong – who had made the UK's first amateur supernova discovery in 1996 – had, after a long break, discovered his 71st on August 30 in UGC 12177.

Among other notable discoveries was 2005df – a *visual* discovery – found from Australia by Robert Evans on July 26, at mag 13.7 in NGC 1559. This was his 46th such discovery. Deep sky imagers might be interested in 2005cs – found, conspicuously placed among the spirals of the *Whirlpool Galaxy* (M51), by German amateur Wolfgang Kloehr, on June 28 at mag 14. As a result of the galaxy's fame, several amateurs had since found pre-discovery images from the preceding two nights. It still remained in excess of mag 15, and had been spectroscopically confirmed as a Type II event. The progenitor had been identified as a mag 23.6 star in *Hubble Space Telescope* archive images. Mr Mobberley added that M51 had previously hosted another supernova, 1994i.

He remarked that there had been an unusually large number of reports of noctilucent clouds this summer; he had seen quite a number of these eye-catchingly silvery-blue streaks himself from Suffolk. On August 8, Maurice Gavin had even seen them from as far south as Worcester Park, Surrey, visible above the light-pollution of London on his northern horizon.

In other news, observations of Kuiper Belt object 2003 UB 313 had allowed its orbit to be secured for the first time since its discovery in 2003 – its slow crawl across the sky, taking several days to travel each arcsecond, had made this a slow process. It was presently thought to be 97-AU distant, which, given its brightness of mag 18.7, placed its size at 2,100 miles across – one-and-a-half times that of Pluto. This made it the largest solar system body to have been discovered since Pluto in 1930, and had already reopened the debate as to where the distinction lay between planets and asteroids. Presently near the apocentre of its eccentric ( $e = 0.44$ ) 557-year orbit, the speaker remarked that it would have been much brighter in the past. At its last perihelion, in around 1750, it would have been at a similar distance to Pluto, and have appeared at mag  $\sim 14$ .

On July 11, Pluto's moon *Charon* had occulted a mag 14.5 star, providing the first such opportunity to measure its size since 1980. L.A. Young et al. of the *Southwest Research Institute* had observed it from three sites in Chile, reporting durations of  $55.3 \pm 0.2$  seconds from all of them. This had constrained Charon's size with unprecedented accuracy, placing three chords of  $1,179 \pm 4$  km across its disk.

Another curious event of the summer had been the discovery of a new dwarf nova near the *Dumbbell Nebula* (M27) by Joerg Hanisch and Hans-Göran Lindberg on August 17/18. Its type remained uncertain: humps of 0.3 mag with 82-minute period seemed typical of a SU UMa subclass object, though its outburst amplitude of 10 magnitudes was unusually large, suggesting that it might be a *tremendous outburst amplitude dwarf nova*, otherwise known as a TOAD.

The sky was somewhat lacking good comets at present, the brightest being C/2005 P3 (SWAN) at mag 10-11 – a new discovery, found by the SOHO satellite on August 4, and which could be found heading northward through Ursa Major. 161P/Hartley-IRAS and 2004 Q2 (Machholz) were both fading at mag 12, heading southward through Canes Venatici and Boötes respectively. 21P/Giacobini-Zinner and 2005 N1 (Juels-Holvorcem), were also both fading at mag 12, and both now fast receding into UK dawn twilight, in Canis Minor and Leo Minor respectively. The former was best observed from latitudes southward of  $+40^\circ$ . At mag 12.5, 2005 A1 (LINEAR) was morning-observable, just outside the north-east corner of the Square of Pegasus, heading westward.

9P/Tempel 1, fading at mag 12, was no longer observable northward of  $+35^\circ$ , but the speaker reviewed the observations made of it in early July, when NASA's *Deep Impact* mission had impacted it with a 370-kg projectile. Many had been anticipating a bright flare in the impact's aftermath, but in the event, whilst it had brightened substantially in the following hours, it had returned to largely normal activity within a few days. NASA would shortly be publishing its preliminary scientific findings from the experiment.

Turning to planetary observation, the speaker first reported that Uranus and Neptune were both well placed in the southern sky, in Aquarius and Capricornus, at magnitudes 5.7 and 7.8, respectively. Both had recently passed

opposition, on September 1 and August 18 respectively. Mr Mobberley paused to show a gallery of Christophe Pellier's images of Uranus, its disk 3"7 across.

Mercury remained observable as a morning planet in Leo, rising 80 minutes before the Sun, but would be lost into dawn twilight within a week. Mars now rose at 10pm BST, its disk 12" across. It would reach its maximal diameter of the apparition, 20"2, on October 30, when it made its closest approach to the Earth; opposition would be on November 7. After recapping the observing tips given in his June Sky Notes<sup>1</sup>, the speaker showed a gallery of remarkably sharp images by Damian Peach and Dave Tyler. He noted in particular two "prongs" on the southern edge of the dark *Mare Cimmerium*, separated by 0"6, the resolution of which Mr Peach had made figure of merit of his imaging.

Saturn, in Cancer, and rising at 3pm BST, was now barely observable in dawn twilight, but the speaker showed some exceptional images that Damian Peach had captured during his 21-day trip to Barbados earlier in the year. He remarked that its 2006 apparition would be interesting, providing the first good view of its northern polar region as it re-emerged from the shadow of the rings; it was speculated that it might have an unusually bluish tint as it first reappeared.

Venus, presently passing westward through Virgo, would be visible as an early evening planet in coming months, but never far above the horizon. Its diameter was presently 15", and would increase as it neared solar conjunction, reaching 25" as its phase passed 50% on November 3, and 36" by December 3.

The speaker then mentioned two forthcoming asteroid occultation events whose paths would cross the UK; both were more likely to be seen from northern parts. On October 11, 712 Boliviana, mag 11.8, would occult mag 9.88 star TYC 1831-01958-1 for up to 24.4 seconds at around 23h05 UT; members were urged to keep watch from 22h44 until 23h26. Then, on October 24, 397 Vienna, mag 11.43, would occult mag 10.62 star TYC 1222-00690-1 for a maximum of 5.3 seconds at 00h29 UT; on this occasion, members were urged to observe from 00h16 until 00h42.

Mr Mobberley finally showed another instalment of images of Jupiter from Damian Peach's recent expedition to Barbados – these were the latest fruits from his ongoing work in processing the 400 Gb mountain of data with which he had returned. The speaker noted one image in particular, where the merger of two barges had been captured in astounding detail. He closed his talk with a movie, constructed by Mr Peach from images taken on April 25/6, which depicted a complete rotation of the planet.

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Dominic Ford

## References

<sup>1</sup> Ford, D.C., 'Ordinary Meeting, 2005 June 25', *Jour. Brit. Astron. Assoc.*, ...