

Ordinary Meeting, 2004 January 10

held at The Geological Society, Burlington House, Piccadilly, London W1

Tom Boles, President

Ron Johnson, Nick Hewitt and Nick James, Secretaries

The President opened the third meeting of the 114th session, welcoming an exceptionally full audience to the Christmas Meeting. However, he regretted that the first item of business was less happy, for Jeremy Cook, a past Director of the Lunar Section, had passed away suddenly on December 21. Furthermore, Lionel Mayling, who had previously held positions as both Treasurer and Assistant Treasurer to the Association, had lost a long battle with ill-health on January 4. A minute's silence was observed in their honour. Dr Nick Hewitt proceeded to read the minutes of the November meeting, which were approved and signed. The Papers Secretary reported that Council had approved one paper to appear in the Journal:

Stonehenge astronomers and the precession of the Equinox, by David Hughes.

Mr Boles announced that 20 new members were proposed for election. The 26 members who had been proposed at the previous meeting were approved and duly elected. The next meeting at the present venue would be on March 31, when the main speaker would be Meghan Gray, with a talk entitled *Dark Matter and Gravitational Lensing*. Before then, the Association's fourth Observers' Workshop would take place at the Open University in Milton Keynes on February 28, and a meeting of the Deep Sky Section on March 6 in Northampton. The President then proceeded to introduce Prof Malcolm Longair, Jacksonian Professor of Natural Philosophy at Cambridge University. The President joked that to give a full CV of Prof Longair would require longer than the talk itself, citing his former position as Astronomer Royal for Scotland, and present post as head of the Cavendish Laboratory, Cambridge, as two of his most notable appointments. It gave Mr Boles great pleasure to welcome Prof Longair to deliver the 2004 Christmas Lecture, entitled *Astrophysics and Cosmology in the 21st Century*.

Prof Longair spoke with great clarity, his excitement for his subject clearly evident. He has since kindly provided his own summary of the address, found elsewhere in this Journal. The talk was followed by enthusiastic applause, after which the meeting broke for tea.

The meeting re-convened after the tea break and the President invited Mr Mobberley to give his Sky Notes.

The January Sky

Mr Mobberley opened his presentation with a summary of the discoveries made in 2003. There had been thirty-three comet discoveries, most by LINEAR and NEAT, but Vello Tabur, an amateur astronomer, had also snatched a discovery from the southern hemisphere. Five galactic novae had been discovered in 2003, by Japanese patrollers, Nick Brown in Australia and one by Bill Liller in Chile. As far as supernovae were concerned, over 300 had been discovered, with our own President, Tom Boles, discovering an incredible thirty himself. Mark Armstrong had added sixteen to his impressive tally and had secured over 80,000 images in the process. His total was now up to fifty-five discoveries, from over a third of a million images checked since 1995! Indeed, Tom and Mark were the world's leading individual (i.e. not working as a team) patrollers. Ron Arbour had discovered four of the brightest supernovae discovered in 2003: his Supernova 2003ie in NGC 4051 was the seventh brightest of 2003. Eight new UK Supernovae (five by Mark and three by Tom) had been discovered since the last BAA meeting. Mr Mobberley explained how he had secured his own first discovery on December 18th, of a nova in M31. He thanked Tom, Mark and Guy Hurst who had helped him validate the claim.

On January 14th the Moon would occult the bright double star Gamma Virginis and the speaker showed how the star would be placed with respect to the Moon's limb. With help from Jonathan Shanklin, Mr Mobberley then explained how the comets 2001 Q4 (NEAT) and 2002 T7 (LINEAR) were developing in the southern and northern skies. Mr Shanklin also showed a light curve of 2P/Encke, compiled from BAA observations. Both Q4 and T7 were brightening steadily. The paths of a number of much fainter comets, essentially CCD targets, were also described. Mr Mobberley then showed a short animation of the approach of NASA's Stardust probe to the nucleus of Comet Wild 2. The shots of the nucleus were only the third such set of images ever obtained, after Halley and Borrelly.

The planet Venus was slowly creeping into the evening sky and a chart of its movement was shown. Joining Mr Mobberley from the audience, Dr McKim then explained how the recent Martian dust storm had evolved and, following this, pictures from the NASA Spirit probe were shown.

Mr Mobberley also showed some extraordinarily high quality images of Mars and Saturn taken in mid December, by Damian Peach. The speaker thought the Saturn image must surely be the best image ever taken from the Earth's

surface, and it was taken from Buckinghamshire with a Celestron 11 telescope! For amateurs with the ability to take high quality images, many spots on Saturn's globe could be recorded and followed at the present time. Moving on to Jupiter, Mr Mobberley explained the major bright and dark spots on the giant planet's disc and how they were currently being followed by advanced imagers, most using webcams.

The speaker showed that two BAA asteroids, 2602 Moore and 4084 Hollis were currently close together near the Beehive cluster M44; both would peak at around 15th mag. For binocular viewers, asteroids Ceres and Hebe were now well placed in Gemini and Canis Minor respectively.

As January turned into February the 2 kilometre diameter Apollo asteroid 6239 Minos would pass within ten million kilometres of Earth, peaking at around mag 14.3.

Finally, Mr Mobberley explained that, on November 23rd 2003, after eighteen years of trying, Andrew Elliott had managed to video tape an asteroid occulting a star, from his home at Warton in Lancashire. The asteroid was 102 Miriam (mag 12.7) and it had occulted an 11.4 mag. star in northern Orion. A copy of the video, showing the star disappear for ten seconds, re-emerge and then, some time later, separate from the star, was shown.

The President thanked Mr Mobberley for his Sky Notes and then explained that as the scheduled final speaker was unwell, Dr Hewitt would be giving a talk on his own specialist area, the Deep Sky.

What's in a Name?

The following talk, Dr Hewitt explained, would be a somewhat informal tour of a little of the nomenclature of astronomy. Much of the language used by stargazers seemed exotic, but somehow beautiful; often foreign-sounding to Western ears, but very bewildering to the newcomer. Even accomplished northern observers could feel themselves thrust back into this state of perplexity upon their first visit south. As an example, the names of the constellations were derived from a rich stew of zoological names, often deeply embroiled in ancient mythology, and mixed with more modern additions. The speaker hoped that what followed would provide insights into many familiar, and a few unfamiliar, objects.

Constellation names, the speaker explained, were a tool which made the sky easier to navigate, or an aide memoir to help in memorising groups of stars. Each civilisation had attached its own associations to various areas of the sky, each with its own mythology attached. Some of these required more imagination than others, Capricorn being one of the more fanciful. With only ten stars, each of mag 3-4, forming the outline, to modern eyes a mythical creature with the horns of a goat and the tail of a fish seemed not the most obvious connection to draw. Indeed, to many, a boat seemed to spring to mind. However, astronomers would appear, in general, an imaginative group, and the more elaborate image is now taken for granted; its origins completely forgotten. Just as we can so readily perceive clouds to take the form of real objects or creatures, it seemed perhaps that this was a prehistoric instance of the Rorschach inkblot test at work. And, as to whether this was no more than the hallucinations of a drunken Babylonian, the speaker could but only speculate. The origins of the constellations being a vast subject in its own right, the speaker moved briskly on.

Browsing any star atlas, a novice was sure to become rapidly baffled by the hotchpotch of Greek letters, Arabic numerals, even Roman numerals in some older atlases, as well as the vast array of catalogue numbers that form stellar names. Many of the more conspicuous stars, or groups of stars, had not surprisingly acquired more memorable designations and nicknames. As an example, the speaker used the well-known stars around Orion, each with familiar informal names: Betelgeuse, Bellatrix, Rigel, and further out, Aldebaran and Sirius. Some names were ancient, many more modern; some were widespread, whilst others were very personal. Each age had brought its own distinctive flavour to the art. More modern nicknames included "Jack and his Wagon", common British names for Mizar and Alcor (separated by a little under 12'). Popular names for nebulae were, Dr Hewitt added, invariably modern since in all but the brightest cases, their discoveries had to await the telescopic era. Even naked eye nebulae were typically neglected previously as too faint to warrant attention.

In the modern era, stars had received nicknames for a wide range of reasons. Cor Caroli, otherwise known as α Canes Venatici, was assigned its new name in 1725 by Halley, in honour of Charles II. It was claimed by court physician Sir Charles Scarborough that it had shined most brilliantly on 1660 May 29, the eve of the new king's return to London at the end of the Commonwealth era. Physicians would evidently go to extreme lengths to win favour with a new monarch! The origin of the names Sualocin and Rotanev for α and β Delphinus respectively had long remained a mystery after their first spurious appearance in the *Palermo Catalogue* of 1814. The explanation was eventually uncovered to lie in their inversions to form "Nicolaus Venator", a Latinised form of the name of Piazza's assistant and successor, Niccolo Cacciatore.

Moving onto groups of stars, the speaker had found definitions of the word "asterism" somewhat elusive in the astronomical literature, but the word was increasingly in very common usage. Many such groupings were of ancient origin, such as the Plough, the Little Dipper or the Square of Pegasus. Each helped to highlight a prominent area of a constellation, and were useful celestial signposts. The most ancient qualifiers for such status were almost invariably open clusters, such as the Pleiades, the Hyades, Praesepe and Coma Berenices. Some of

these names could be traced back beyond the earliest literature we have, for example, Homer made reference to the Hyades cluster in his writings. Other asterisms, such as the Summer Triangle and the Teapot in Sagittarius, were more recent additions, the former having been coined by Sir Patrick Moore. Many newer additions were so faint that they had not warranted much attention before the telescopic era, but now provided instantly recognisable and invaluable signposts to asteroid and nova patrollers. The speaker's personal favourites included Brocchi's Cluster, named after a chart-maker at the AAVSO at the turn of the 20th century, Dalmiro F. Brocchi, though now often called after its conformational lookalike, "The Coathanger". Another favourite was Kemble's Cascade, a group of 20 stars in the mag 7-10 range, cascading into NGC 1502 in Camelopardis. A more modern addition, it had been named by Walter Scott Houston after it was pointed out to him in a letter from Father Lucian Kemble in 1980. Being found in a constellation with few bright stars, it was ideally located for deep sky observation.

Some deep sky observers, particularly those working in America, were very keen on forming new asterisms. A great hero of this cause had been the late Walter Scott Houston, who wrote his *Deep Sky Wonders* column for *Sky and Telescope* from 1946 until his death in 1993, his last column appearing in July 1994, and who had enthusiastically and persuasively encouraged their construction. However, the speaker questioned the value of scanning the sky with binoculars seeking to instigate new nomenclature – recent additions ranging from the Broken Engagement ring of Ursa Major to the Red Necked Emu of Cygnus.

The speaker moved onto the names assigned to deep sky objects, so numerous and of such varying types that they invited a vast array of descriptive terms. The need for many of these had had to await the telescopic era, or even later until the widespread use of photography in the case of more diffuse objects, galaxies in particular. The early deep sky observers, working at the dawn of this vast field, made full use of the opportunity to construct elaborate descriptions of the systems they observed. The disappearance of such florid language as used by these pioneers was a loss that the speaker regretted in the modern electronic age, and so he used the closing minutes of his talk to put forward some of these more poetic depictions.

For example, upon discovering the *Ring Nebula*, M57, in 1779, Darquier in Toulouse said of it "a very dull nebula but perfectly outlined; as large as Jupiter and looks like a fading planet". Messier thought it to be a ring of unresolved stars, meanwhile William Hershel described it as both "a ring of stars" and "a perforated nebula", coining the term "planetary nebula" in comparison of its disk to that of a planet. John Hershel was the first to comment upon the inner light as "like a gauze stretched over a hoop". The word "ring" first appeared in descriptions by d'Arrest and Smyth, and would seem to have stuck.

The famous *Crab Nebula*, M1, was discovered by John Bevis in 1731, later being noted by Messier on 1758 September 12. The name "crab" was not to appear until 1844, when Lord Rosse described the filaments as like "the legs of a crab". As for the *Dumbbell Nebula*, M27, the speaker recalled Messier's description upon its discovery in 1764 as an "oval nebula with no star". William Hershel later described a "double stratum of stars", whilst John Hershel noted the luminosity filling of a lateral cavities, and first used the name "dumb-bell" of it. Lord Rosse commented upon "an external ring like a chemical retort".

Messier had been the first to stumble upon the *Whirlpool Galaxy*, M51, in 1773, whilst observing a comet. His friend Méchain noted its outlying companion galaxy, NGC 5195, a few years later, in 1781. Rosse provided a beautiful description: "spiral convolutions... with successive increase of optical power, the structure has become more complicated". He was convinced that NGC5195 was physically connected to its neighbour NGC5194, drawing it as such. In the photographic age, this conviction has been vindicated, though the connecting tail is very faint. The name "whirlpool" described well its appearance, but was of unknown origin, quite possibly one of Rosse's many attributions. Next the speaker moved to the *Trifid Nebula*, M20, discovered by Le Gentil and named by John Hershel, who said of it "...singularly trifid, consisting of three bright and irregularly formed nebulous masses... they enclose and surround a sort of 3-forked rift or vacant area, abruptly and uncouthly crooked and quite devoid of nebulous light..."

After discussing a few further jewels from the deep sky treasure trove, each illustrated with fine images, many from the Association's active deep sky observers, the speaker went on to discuss the changes brought by the modern photographic age. Diffuse, large, low surface brightness objects had been properly recognised for the first time, including the *Helix Nebula*, NGC 7293, and the *Eskimo Nebula*, NGC 2392. In recent decades, with modern photographic and CCD equipment, amateurs had become able to image these objects which had previously only been accessible to professionals. The Hubble Space Telescope was now pushing the frontiers to even deeper sky objects: the *Cartwheel Galaxy*, the *Egg Nebula*, the *Hourglass Nebula*, and many more.

In conclusion, the speaker explained that nomenclature had an important role to play in making astronomy more accessible. Used in moderation, it could fire the imagination, but there was a danger of inventing new words in excess. After the applause, the President wished members a successful new year before adjourning the meeting until February 28 at the Open University in Milton Keynes.

Dominic Ford and Martin Mobberley