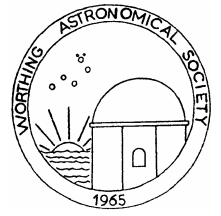




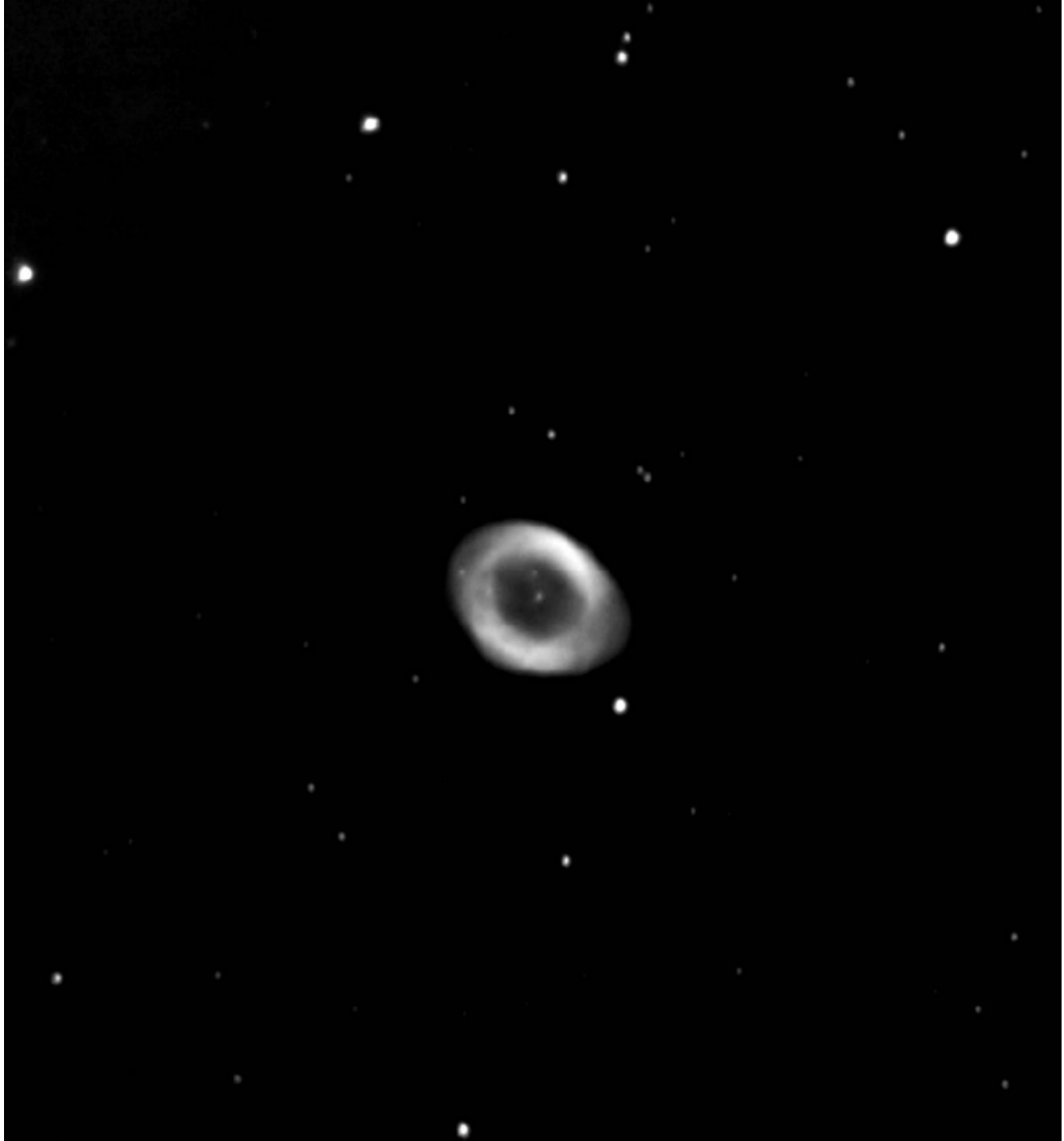
WAS NEWS

Monthly Newsletter of the **W**orthing **A**stronomical **S**ociety
www.was.org.uk



Number 213

November 2007



Ring Nebula M.57.

Trevor Little and (processed by) Ed Sampson

7 6 exposures of 20 seconds taken with a C11 with a 6.3 focal reducer. DMK fire wire Planetary CCD Camera. 12th September 2007.

ALMANAC

All times U.T.

November/December

LUNAR

November	Date	Time	Rise	Set
Last Quarter	1 st	21.18	22.18	13.50
Apogee	9 th	12.49	406,667km	
New moon	9 th	23.03	06.53	15.30
First Quarter	17 th	22.33	13.13	22.51
Perigee	24 th	00.19	357,199km	
Full Moon	24 th	14.30	15.15	07.46
December				
Last Quarter	1 st	12.44	23.55	12.40
Apogee	6 th	17.04	406,212km	
New moon	9 th	17.40	08.16	14.57
First Quarter	17 th	10.17	11.57	**.*
Perigee	22 nd	10.21	360,829km	
Full Moon	24 th	01.16	15.58	09.04
Last Quarter	31 st	07.51	00.04	11.17

EARTH

November	Sunrise	Sunset
1 st	06.53	16.34
9 th	07.07	16.20
17 th	07.21	16.09
24 th	07.33	16.01
December		
1 st	07.43	15.55
9 th	07.53	15.52
17 th	08.01	15.52
24 th	08.05	15.55
31 st	08.06	16.00

PLANET (As at December 1st)

	Constellation	Rises	Sets	Mag.
<u>Mercury</u>	Libra	06.53	15.32	-0.8
Unsuitably placed				
<u>Venus</u>	Virgo	03.33	14.24	-4.2
Morning object in the south-east				
<u>Mars</u>	Gemini	17.39	10.37	-1.3
Visible all night				
<u>Jupiter</u>	Ophiuchus	09.08	17.02	-1.8
Unsuitably placed				
<u>Saturn</u>	Leo	23.09	12.57	+0.6
Morning object in the south-east				
<u>Uranus</u>	Aquarius	12.56	23.55	+5.8
Evening object in the south west				
<u>Neptune</u>	Capricornus	12.04	21.34	+7.9
Evening object in the south-west				
<u>Pluto</u>	Sagittarius	08.39	17.47	+14.0
Unsuitably placed				

PHENOMENA

Day	Hour	November
24 th	10	Uranus at stationary point
27 th	06	Mars 2°S. of moon
		December
1 st	11	Saturn 2°N. of moon
5 th	19	Venus 7°N. of moon
9 th	08	Mercury 4°N. of moon
10 th	15	Jupiter 5°N. of moon
17 th	15	Mercury in superior conjunction
19 th	14	Saturn at stationary point
20 th	22	Jupiter 2°N. of Mercury
21 st	00	Pluto in conjunction
23 rd	06	Jupiter in conjunction

Minima of Algol

November	16 th	18.06	25 th	08.36	28 th	05.24
December	1 st	02.12	3 rd	23.00	6 th	19.48
				03.54	24 th	00.42

Lunar Occultation's

Times as at NEW W.A.S. Observatory site
I've noticed a difference of up to ten seconds or so on some timings from the old site.

Date	U.T.	S.A.O. No	Mag	Phase
November	h. m. s.			
19 th	22.00.54	146712	7.6	Diss
19 th	23.30.52	146733	6.6	Diss
20 th	20.53.19	109094	7.0	Diss
20 th	23.13.21	109149	8.3	Diss
21 st	20.31.08	92280	8.4	Diss
21 st	21.34.03	92295	8.6	Diss
22 nd	21.49.16	92810	6.4	Diss
26 th	21.11.08	78417	6.5	Reapp
26 th	21.52.58	78455	8.0	Reapp
27 th	22.14.40	79523	7.9	Reapp
27 th	23.46.10	79562	6.3	Reapp
28 th	00.11.22	79578	8.8	Reapp
28 th	00.15.23	79580	6.0	Reapp
28 th	22.03.40	80243	5.3	Reapp
28 th	23.46.34	80278	7.8	Reapp
December				
14 th	19.08.55	164438	8.4	Diss
15 th	17.25.04	164970	8.8	Diss
15 th	19.09.13	164997	8.8	Diss
16 th	17.11.10	145494	8.7	Diss
16 th	17.19.00	146499	9.2	Diss
16 th	19.14.52	146523	8.8	Diss
16 th	19.56.13	146527	9.1	Diss
17 th	19.25.20	128483	9.0	Diss
17 th	22.06.53	128524	8.0	Diss
18 th	18.11.23	109437	8.5	Diss
19 th	18.22.53	92556	6.9	Diss
20 th	19.24.18	93033	7.1	Diss
20 th	21.50.37	75531	7.8	Diss
20 th	23.11.38	75558	7.4	Diss
21 st	21.21.31	76140	4.4	Diss
21 st	21.21.40	76126	5.4	Diss
21 st	21.42.39	76159	5.9	Diss
21 st	21.47.13	76164	6.5	Diss
21 st	21.49.15	76137	5.6	Diss
21 st	21.52.09	76155	4.0	Diss
21 st	22.18.50	76183	6.7	Diss
25 th	21.23.34	79940	6.2	Reapp
25 th	21.44.24	79948	7.2	Reapp
26 th	22.53.31	98358	8.0	Reapp
28 th	23.27.14	118483	6.4	Reapp
28 th	23.54.22	118493	7.0	Reapp

The list above is a selection of the more easily observed evening events, (about 15 % of the list available,) there are more in the wee small hours for the insomniacs amongst us

Dave Wells

Editors Note

Thank goodness for the recent appearance of three comets (more inside these pages), Junior WASNews editor was having so much trouble pronouncing 'Shoemaker-Levy' that 'Tuttle' will be a relief to all.....Right young lady, after me.....Hy - ah - ku - ta - ke!

Rob

Dates for your Diary

Observatory Evenings.

Trevor Little

Observatory objects for Friday 30th November.

Observing sheets will be available for you to record your sightings.

Hopefully different filters will be available to help view any nebulosity associated with these objects.

Messier M 27.

Also known as the Dumbbell nebula, the largest planetary nebula in the Messier Catalog, M27 lies in the constellation Vulpecula. Fairly easy to see in binoculars as a small hazy patch. In small to medium scopes it appears as a rectangular patch of light. In large scopes it may even appear round in shape with a bright rectangular, or dumbbell shaped core. At 20-00 hrs M 27 will be about 58 degrees. Magnitude 7.3

Messier M 30.

This globular cluster in Capricornus is tough but very possible to see in binoculars as a faint fuzzy star. Telescopes show a small fuzzy ball of light, bright in the center fading to the edges. At 20-00 hrs M 30 will be about 15 degrees. Magnitude 7.5

Messier M 57.

This smallest planetary nebula in the Messier Catalog is the famous Ring nebula in the constellation Lyra. Low power telescope views show a very small blue/green disk, not much bigger than a star. Medium to high power will magnify the size of the nebula while leaving the surrounding stars the same size, confirming you have found it. Can be seen in binoculars as a faint star like point of light. At 20-00 hrs M 57 will be about 59 degrees. Magnitude 9

Comet 8P / Tuttle

Alex Vincent

Date	R.A.		Dec.		Mag.
	h	m	°	'	
Nov 16	16	54.9	+85	17	9.5
Nov 26	19	16.5	+84	50	8.6
Dec 6	22	12.7	+81	46	7.6
Dec 16	00	08.5	+71	52	6.5
Dec 26	01	12.0	+48	37	5.4
Jan 5	01	51.1	+09	38	4.9
Jan 15	02	18.3	-20	38	5.3
Jan 25	02	38.8	-35	57	5.9

The above co-ordinates are for Epoch 2000.0. The comet becomes too low for UK observers by the end of January 2008. Comet Tuttle has a period of 13.5 years and its last apparition in 1994 was badly placed due to it being on the other side of the sun. The 2007 / 2008 apparition is very well placed, but not its next in 2021. It will not be well placed again until its return in 2034 / 2035.

Reports

Solar Section Report - October, 2007

Brian Halls

A brief report this month!

Sunspot activity was low throughout the month and the number of spotless days now outnumber spotted days.

As a Society, two members observed the Sun on 22 days of which only the 6th and 7th were recorded as spotty - a small southern hemisphere group.

The SIDC (Solar Index Data Centre) in Brussels also reported activity in the north on the 8th - a short lived active region - then spotless for the rest of the month.

Reports were received from Graham Boots and the Director.

R = 1.65 (average relative daily sunspot count) SIDC
R = 0.9

MDF = 0.12 (average daily sunspot groups).

Chairman's Report 2006-2007

Jan Young - Chairman WAS 2005-2007

The major event of the new season occurred shortly after the AGM when the committee were informed that our former meeting venue was closing and a new one had to be found. Fortunately this was done very quickly, thanks to several members of the committee, and by March we had relocated to our new, present meeting hall. Even though we had to change our day to the third Monday in the month, membership has continued to remain the same, perhaps even increasing. My thanks go to all who were involved in finding our new meeting premises. Unfortunately the move did mean that our equipment had to be stored at members' homes, to all of you who took care of equipment, thank you very much. Hopefully in the not too distant future this problem may be resolved by the provision of a cupboard.

During March there was an open evening at the Observatory on the night of the total Lunar Eclipse, many family, school and society members attended. Some results were obtained photographically even though many of us had problems with dew. In May the society attended a special show at the Planetarium which celebrated 50 Years of the Sky and Night. During July WAS had a stand at the Open Day of Salvington Windmill where we disposed of many brochures and hopefully created some interest. My thanks go to all who attended on that day and to Colin for providing a cake for our 'entry' fee.

Due to the poor weather of the summer it was decided in advance to cancel the BBQ and on the actual night it proved fortunate that we did so.

As is usual Graham has provided us with a good supply of varied and interesting speakers.

My thanks go to all the committee members for their help over the last year, to all those who have looked after equipment and brought it along at the meetings, to our editor Rob for the work done on providing our monthly Newsletter, Graham Darlington for printing WAS News, Dave and Linda Storey for bringing the library back and forth at our meetings, our ladies who provide the refreshments for the break and to Colin for his work as treasurer over the last few years.

Notices

New Telescope Grant Application Proposal – Part 2

Graham Boots

On the 21st July last I sent an email inviting members to submit their proposal for a new telescope(s) for our observatory at Windlesham House School. I am very pleased to say that so far I have received seven proposals, some quite comprehensive and exciting. So I extend my thanks to those people for their hard work and thoughts and to those others who have helped in some other way. To the other people I approached, if you are still thinking or working on your proposal I would be very pleased to receive it in the near future.

I expect the observatory sub committee to meet towards the end of November to discuss the proposals received before we can move to decision making for the benefit of our grant applications.

I will prepare copies of all the proposals received and send to each member of the observatory sub committee well before the meeting which has yet to be arranged. There are currently seven members on the observatory sub committee.

WAS Competition

Ed Sampson

Subject
The competition is on an Image/ Photography based theme. The entrants are to capture or photograph anything in the sky with an astronomical theme.

Categories

There are 2 categories

1 Camera and SLRs

This will include film and digital SLRs compact digital and film cameras

And just about any sort of manual use camera.

2 CCD and Webcams

The second category is for Deep space CCDs or webcams.

The Prize

There are 2 first prizes one for each category.

You will each get your photo on the front page of the WAS news

You will each receive a £10 WH Smith prize

You will also receive an additional prize based on your choice of Photography.

The Rules

- 1 The competition is **not** open to committee members.
- 2 The Photo/Image must be on an astronomical theme and taken during the competition time.
- 3 Details must be provided of the equipment used to capture your subject.
- 4 The winners will be announced on the January social and the covers will follow.
- 5 Only 1 image per person
- 6 A minimum of 5 entrants is required for the competition to go ahead.

Images

You can submit your images in any form
Photo, Print out, Slide, Digital image or even a Sketch

Submit all images to Ed Sampson or e-mail them to
star.man1@ntlworld.com

The committee will decide on the best entrants
The details will also be printed in the next few additions
of WAS news

Astronomical Publications

Graham Boots

The society annually subscribes to the following four organizations and receives their publications which are circulated free to members. Please let me know if you would like to go on any of the circulations lists letting me know which journals you would like. My telephone number is 01903 505346. They are *Astronomy Now*, *Sky & Telescope*, *Society of Popular Astronomy* including news letters and journal of the British Astronomical Association.

Sir Patrick Moore

Graham Boots

Visit Sir Patrick Moore Sunday 25 November 2007 at Selsey at 7.00pm. Tickets £5 children free Details from Trevor Little tel., 01273 242570

New Year Social Buffet

Graham Boots

New Year Social Buffet - 21st January 2008. The committee is treating members to this spread. Volunteers needed for games, quiz, raffle and other jovialities

Articles

Comet 17P/Holmes

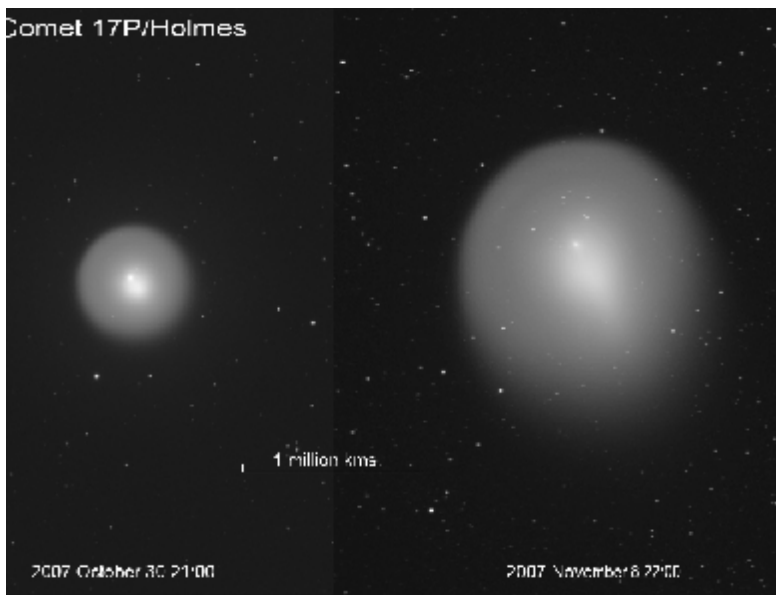
Nick Quinn

Periodic comet Holmes, currently undergoing a fascinating 'superoutburst', was discovered by Edwin Holmes, a member of the British Astronomical Association, on Sunday 6th. November 1892. His report appeared in The Observatory magazine of December 1892 (Holmes, 1892). On aiming his telescope towards M31 in Andromeda, Holmes saw something nebulous in his finderscope. On examination with the main 'scope he called out 'What is the matter? There is something strange here.' His wife came out to see what had happened: 'This is coming end on, and will be a big fellow, and I must get a position before I leave it if possible.', he said. Clouds hid the comet before he could get more than a rough position, but later the skies cleared again and he was able to get a more accurate position which he reported to the Astronomer Royal. On Monday evening, the comet was confirmed with the naked-eye by Messrs. Kidd and Bartlett.

By the evening of Tuesday 8th., news had spread to the USA and the great American observer E.E. Barnard was able to observe the comet with the 12-inch refractor at Lick. On this date the comet 'was a perfectly circular and clean cut disk of dense light, almost planetary in outline. There was a faint, hazy nucleus with a slight condensation some 5" south following the nucleus.' (Barnard, 1896). Those who saw Holmes at the end of October 2007 will recognise that description very well indeed! Barnard carried out many observations of the comet over the following weeks and his work was summarised in the Astrophysical Journal. As in 2007, the comet suddenly brightened from invisibility over a period of hours. Once its orbit had been computed and found to lie within the asteroid belt, there was speculation that a collision of two asteroids had taken place. The comet faded during December 1892, and by January 4th. 1893 was very difficult to see with the 12-inch. However, on the 16th. Barnard decided to have one more look at the comet and was surprised to find it shining at magnitude 8 and having the appearance of 'a small, bright hazy star'. As Barnard watched, the comet noticeably brightened and grew in size. A few days later the comet had again faded.

The comet was seen on its return to perihelion in 1899 and 1906, but a close encounter with Jupiter in December 1908, changed its orbit and it was lost until 1964. Since then 17P/Holmes has been a faint object until the current return. The explanation for this comets unique behaviour

over a period of more than 100 years may take some time to work out. Cometary astronomer Fred Whipple proposed that 'the phenomena are consistent with the grazing encounter of a small satellite with the nucleus on November 4.6. 1892, and the final encounter on January 16.3, 1893.' (Whipple, 1984). At a solar distance of 2.39AU an outburst due to heating of H₂O by solar activity was possible although near the limit for this to occur. For comparison, the 2007 superoutburst has occurred with the comet at a similar distance of 2.43AU from the Sun. According to Whipple the coma diameter at the 1892 discovery was inconsistent with this type of outburst (expansion rate too high to be explained by outgassing). The 2007 superoutburst negates one of Whipple's comments that 'The faintness and fading of the comet on subsequent returns and the lack of other observed bursts suggest a "dying" comet for which the 1892 outbursts were unique.' Surely Whipple's hypothesis must now be ruled out. Sadly he died in August 2004 so he will not be able to revise his thoughts on this remarkable comet.



Whether the comet will undergo a second burst of activity this time around remains to be seen, but in any case this is a fascinating and unique object ideally placed high up in our Autumn sky.

Some of the original papers referred to, are available from NASA's Astrophysics Data System at <http://www.adsabs.harvard.edu/>.

Holmes, E. (1892) Discovery of a new comet in Andromeda, *The Observatory*, Vol. 15, pp. 441-443

Barnard, E. E. (1896) Photographic and Visual Observations of Holmes' Comet, *Astrophysical Journal*, vol.3, pp.41

Whipple, F. L. (1984) Comet P/Holmes 1892III - A case of duplicity? *Icarus*, vol. 60, Dec.1984, pp.522-531.

The two images of 17P/Holmes were taken with an SXV-H9 CCD camera and TeleVue-85 telescope. The image scale has been kept the same to show the expansion of the coma over 9 days.

Sky Quality Meter

Colin Knappitt

While it is easy to make qualitative statements about levels of light pollution at different locations, such as, "It's dreadful in my back garden" or "The sky was so dark last Tuesday, I could actually see three stars", we are likely to make more headway in combating the blight if we can produce quantitative data: i.e. numbers. There have been surveys that involve counting the number of stars visible within a prominent constellation such as Orion or the Square of Pegasus from many geographical locations. Care is, of course, needed to standardise the observations with factors such as elevation above the horizon, local weather conditions and acuity of eyesight of the observers requiring consideration. Use of a Sky Quality Meter removes some of the variables though others remain. (For example, how do you ensure continued calibration between meters?)

The Sky Quality Meter or SQM is a light meter sensitive only to visible radiation and with internal compensation for operation at different temperatures. You point the sensor towards the zenith so there is no bother about angle of elevation. The unit then measures the light from the sky reaching the sensor within a cone of half-angle 40 degrees and gives a read-out on a red LED display with an error of $\pm 10\%$. The scale units are magnitude per square arcsecond (mag./arcsec.) but this is not important. What is important is that the higher the reading, the less the light pollution and the darker the sky. The scale is logarithmic, like the star magnitude scale, and also like that scale, an increase of one unit means about 2.5 times less light. So, a reading of 20 means 2.5 times less light than a reading of 19; and a reading of 21 means 2.5 x 2.5 or 6.25 times less light than a reading of 19, etc. A change of five units means the amount of light has gone up or down by a factor of 100.

At the darkest sites on Earth, it appears that -you might get a reading of 23 from the zenith when the Moon is out the way. Presence of a Full Moon could reduce that to 17; which means about 250 times more scattered light reaching the sensor. The best reading from my back garden so far is about 20.2; Graham Boots has recorded 20.3 at the Windlesham site.

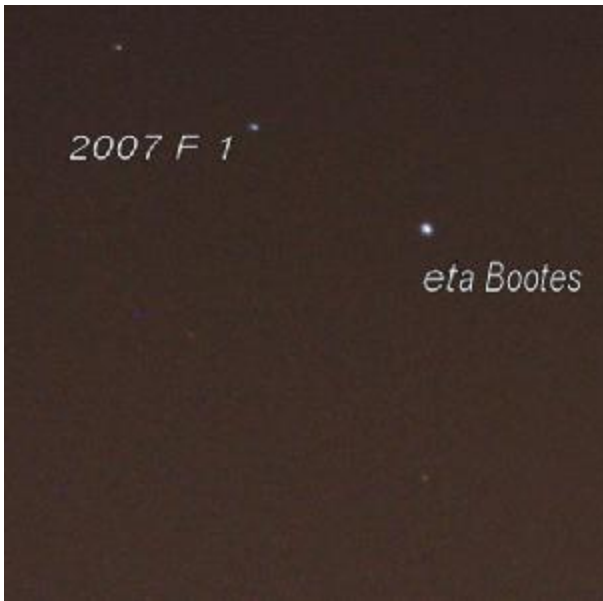
Comet LONEOS (C/2007 F1)

Brian Halls

There are sometimes quite a few comets visible at anyone time in the sky above us - more often as not, they are low magnitude and require a telescope or long photographic exposures to reveal them.

Sometimes however a faint comet can be within binocular range or just at naked eye visibility.

During late October we were blessed with a faint comet LONEOS (**Lowell Observatory Near-Earth-Object Search**) 2007 F1.



This object was about magnitude 5 - 6 and was thus at the limit of naked-eye observability - made worse by being placed in evening twilight sky conditions in the constellation of Bootes. Add to that any artificial light glow, the object was not necessary obvious to the casual sky gazer.



I photographed the comet as it passed close to η Bootes, using a Canon 300D DSLR, at f3.5. The picture published here, is a detail from the original frame. A short exposure - 7 seconds - revealed the green colour of the comet.

A bonus that evening was the capture of a faint sporadic meteor in another frame taken during the session - again, a detail from the original frame is shown.

Edwin Holmes 1842-1919

Jan Young, Historical Section Director

Born in Northampton in 1842, Edwin Holmes was among the original members of the British Astronomical Association formed in 1890. He frequently took part in the discussions held at meetings with an interminable and challenging attitude and although he often bluntly criticised observations and statements sent in by members he was a very enthusiastic member, being involved in the Double Star Section from its early days. On the night of 5th/6th November 1892, while observing the Andromeda Galaxy he discovered the comet that now bears his name and for which he was awarded the Donohue Comet Medal of the Astronomical Society of the Pacific. He remained a member of the BAA until his death in 1919.



Comet Holmes – Credit: Brian Halls

At the time of the discovery Comet Holmes appeared to be undergoing a similar outburst to that of 2007, as it reached 4th magnitude and was visible to the unaided eye, fading then brightening before fading for good. It was observed again in 1899 and 1906 then it was lost until 1964 when it was rediscovered. The comet orbits the Sun once every 7 years at a distance of approximately 200 million miles.



Comet Holmes over 24hour Period. Credit: Brian Halls

WAS Ad

Sussex Astronomy Centre

For all your astronomy needs
Meade, Celestron, SkyWatcher, Tal Telescopes
Large range of accessories, software, books etc
16 Mulberry Lane
Goring by sea
Worthing, West Sussex.
Telephone 01903-247317
Email worthingastronomy@tiscali.co.uk
Web Site. www.sussex-astronomy-centre.co.uk
Ask for Paul Farmer (Club Member)

What's on the Box

Sunday 25th November 2007



20.30 – 21.00: The Sky at Night

The world of astronomy with Sir Patrick Moore

Repeated on the 26th, 30th and 1st December

WAS News News

NASA spacecraft to carry Russian science instruments

NASA News Release

WASHINGTON - NASA and the Russian Federal Space Agency Roscosmos have agreed to fly two Russian scientific instruments on NASA spacecraft that will conduct unprecedented robotic missions to the moon and Mars.

NASA Administrator Michael Griffin and Roscosmos head Anatoly Perminov signed agreements in Moscow on Oct. 3 to add the instruments to two future missions: the Lunar Reconnaissance Orbiter, scheduled to launch in October 2008, and the Mars Science Laboratory, an advanced robotic rover scheduled to launch in 2009.

Russia's Lunar Exploration Neutron Detector on the Lunar Reconnaissance Orbiter will search for evidence of water ice and help understand astronauts' exposure to radiation during future trips to the moon. The instrument will map concentrations of hydrogen that may be found on and just beneath the lunar surface.

Roscosmos' Dynamic Albedo of Neutrons instrument on the Mars Science Laboratory will measure hydrogen to analyze neutrons interacting with the Martian surface. The principal investigator for both instruments is Igor Mitrofanov of the Institute for Space Research of the Russian Academy of Science.

"Russia's contribution to the Lunar Reconnaissance Orbiter and Mars Science Laboratory missions continues a rich and long-standing tradition of cooperation between NASA and Russia for scientific research in space," Griffin said. "The Institute for Space Research has a track record of delivering excellent instrumentation, and we are delighted to have international participation on these missions to explore the moon and send a robotic laboratory to Mars."

The Lunar Reconnaissance Orbiter will circle the moon for at least a year, obtaining measurements necessary to identify future robotic and human landing sites. It also will look for potential lunar resources and document aspects of the lunar radiation environment.

The Mars Science Laboratory rover is a mobile research platform that will explore a local region of the Martian surface as a potential habitat for past or present life. The rover will carry a suite of highly capable analytic and remote sensing instruments to investigate planetary processes that influence habitability, including the role of water.

Diary

19th November 2007 Observing Mars - Neil Bone. Mars will be at opposition on 24th December 2007. Neil is Section Director of the Meteor section of the British Astronomical Association & Author of 'Mars Observing Guide'.

30th November 2007 Evening with Trevor Little at the Observatory

14th December 2007 At the Observatory from twilight onwards Geminids Meteor Shower

17th December 2007 Nuclear Fusion: The Sun's Power on Earth – Jim Swift Crawley Astronomical Society.

28th December 2007 Evening with Trevor Little at the Observatory

1st December 2007 40th Anniversary Meeting the Webb Deep Sky Society at the Institute of Astronomy Cambridge. 10.30 to 17.30. Doors open 9.30. Many lectures and probably a tour of the telescopes at lunch time. All Welcome. Contact Graham Boots for details.

12th January 2008 Back to Basics BAA Workshop Something for most practical observers. 10.00 to 17.30
Clanfield Memorial Hall, Clanfield just north of Portsmouth

21st January 2008 New Year Social & Member's contributions.

18th February 2008 Astro Photography - Making Every Photo Count - Steve Richards

17th March 2008 Stars: Origin and Evolution – Dr Serena Viti Department of Physics and Astronomy University College London

21st April 2008 Member's Evening - Results of their work and short talks reflecting their own special interests in various branches of astronomy

All meeting (bold) are held on the 3rd Monday of every month (except August when we normally have a bar-b-que at a member's home) at Emmanuel United Reform Church Hall on the corner of Heene Road and St., Michael's Road, Worthing beginning 7.30 p.m. Meetings include the latest astronomical work, reports and images by members. For further details contact us by Internet at www.was.org.uk or email chairman@was.org.uk

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Graham L. Boots

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Treasurer: TBA

Note to Contributors

Contributions & Correspondence for the **December** issue of WAS NEWS should be with the Editor by the **end of the 1st full week in December**. All material for inclusion should be sent to the Editor.

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