



# WAS NEWS

Monthly Newsletter of the Worthing Astronomical Society

Official website: [www.was.org.uk/](http://www.was.org.uk/)

Affiliated websites: [www.observatory99.freemove.co.uk](http://www.observatory99.freemove.co.uk)



Number 159

December 2002

## ALMANAC

All times U.T.

### December./ January.

#### LUNAR

December	Date	Time	rise	set
New moon	4th	07.34	08.01	15.53
First Quarter	11th	15.49	12.54	23.43
Full Moon	19th	19.10	16.12	08.58
Last Quarter	27th	00.31	**.**	12.23
January	Date	Time	rise	set
New moon	2nd	20.23	08.09	15.19
First Quarter	10th	13.15	11.39	**.**
Full Moon	18th	10.48	16.09	08.31
Last Quarter	25th	08.33	00.27	11.03

#### EARTH

December	Sunrise	Sunset
4th	07.47	15.53
11th	07.56	15.51
20th	08.02	15.52
27th	08.06	15.57
January	Sunrise	Sunset
2nd	08.06	16.03
10th	08.03	16.13
18th	07.57	16.25
27th	07.47	16.40

#### PLANETS

(as at December 27th.)

	Constellation	Rises	Sets	Mag.
<b>Mercury</b>	Sagittarius	09.25	17.33	-0.4
Possible evening sighting				
<b>Venus</b>	Libra	04.00	13.42	-4.5
Magnificent morning object visible in the South east				
<b>Mars</b>	Libra	03.56	13.17	+1.6
Morning object visible in the South east				
<b>Jupiter</b>	Cancer	19.28	10.27	-2.5
Morning object visible in the South				
<b>Saturn</b>	Taurus	15.09	07.17	-0.5
Visible most of the night				
<b>Uranus</b>	Capricornus	10.38	20.27	+5.9
Unfavourable				
<b>Neptune</b>	Capricornus	09.55	18.56	+8.0
Unfavourable				
<b>Pluto</b>	Ophiuchus	05.57	15.44	+13.9
Unfavourable				

#### PHENOMENA

Day	Hour	December
13th		Geminid meteor shower
17th	17	Saturn at opposition
19th	15	Saturn 3°S. of moon

23rd	14	Jupiter 4°S. of moon
26th	05	Mercury at greatest elongation E. 20°
30th	01	Mars 1°S. of moon
30th	08	Venus 2° N. of moon
January		
2nd	18	Mercury at stationary point
4th	01	Mercury 5 N. of moon
11th	02	Venus at greatest elongation W. 47.
11th	20	Mercury in inferior conjunction
15th	19	Saturn 3. S. of moon
19th	17	Jupiter 4. S. of moon

#### Minima of Algol

December	9th 04.42	12th 01.30	14th 22.18
		17th 19.06	
January	1st 03.12	4th 00.00	6th 20.54
		9th 17.42	

#### Lunar Occultation's

Times as at W.A.S. Observatory

Date	U.T.	S.A.O.No	Mag	Phase
Dec.	h. m. s.			
12th	20.59.07	128710	8.0	diss
13th	20.12.44	109643	6.1	diss
13th	20.57.40	109655	8.5	diss
14th	22.32.31	110154	7.3	diss
15th	22.33.30	93004	7.6	diss
16th	00.13.25	93022	5.6	diss
18th	02.19.38	76532	4.8	diss
25th	01.28.51	99280	6.8	reapp
25th	01.50.43	99287	7.6	reapp
Jan				
8th	16.46.27	147017	6.7	diss
8th	17.26.06	147033	8.1	diss
8th	17.26.57	147032	8.1	diss
9th	18.21.58	128938	9.0	diss
9th	20.02.24	128962	8.4	diss
11th	22.09.57	92875	8.6	diss
12th	21.03.51	93238	8.5	diss

This is only about 15% of the predictions for the W.A.S. observatory.

Dave Wells

## *Editors Note*

Ho, Ho, Ho! Well it's that time again, So hang out that holly, dust off those balls and join with me in wishing all those at WAS, your families and friends a very Merry Christmas and prosperous New Year. Also a big thank you to everyone who has contributed to these pages over the last year. May we all have clear skies for 2003!

Rob

## *Dates for Your Diary*

Solstice Drink - 20.00hrs, The North Star, Littlehampton Road, Worthing, Saturday 21st December

## *Reports*

### The Planets in December 2002

Glen Thomas - Planetary Section Director

The long winter evenings give us Saturn and possibly Mercury, but it is the pre-dawn twilight that holds the splendour, with Mars, Venus, Jupiter and Saturn lining up across the southern sky.

**Mercury** puts on an evening show around the New Year, but it will not be simple to spot. It stays low and does not get signposted by the Moon this time around. Look for the tiny planet 4 to 5 degrees above the southwestern horizon (az. 221° to 228°) from **Christmas** day to **January 5th**.

**Venus** is already standing bright and tall in the dawn twilight, with **Mars** close by but much dimmer and difficult to pick out as the sky starts to brighten. The two planets start the month 2° apart, extending to 5° by early January, with the red planet to the right and a little lower throughout. Mars reaches opposition in August 2003.

**Jupiter** is moving slowly from Leo into Cancer and is best observed after midnight when it is high in the sky. Below about 30° atmospheric turbulence can obscure much of the detail and contrast of the clouds of the giant planet.

**Saturn** reaches opposition on the **18th** and is high in the sky throughout the month. On **January 5th** Saturn passes in front of M1, the Crab Nebula in Taurus. The rings are wide open, the planet is close to perihelion and it is high in the sky - this month will be a vintage one for Saturn observers.

**Uranus** and **Neptune** set before the sky is dark enough to observe them.

**Pluto** reaches solar conjunction during December.

The asteroid **5 Astraea** is moving eastwards through the 'head' of Cetus, reaching midway between 78 v Ceti and 73  $\xi$  2 Ceti from the **22nd** to the **25th**. At magnitude 10.5, it can be spotted by drawing the eyepiece view for two nights, the motion betraying the minor planet's presence.

### Solar Section Report - October 2002

Brian Halls Section Director

Sunspot activity remains constant.

The beginning of the month saw a brief respite in the number of sunspots visible, though two large groups were present, the largest being region 100139 at N11°L=336° (size/type, 0600 Eki) which was of naked eye visibility.

By the end of the second week of the month, activity had increased once more, with activity being evenly distributed between the northern and southern solar hemispheres.

On almost every day of the latter part of the month there appeared to be a large group on the Sun. The largest appeared on the Sun on the 17<sup>th</sup>. Region 100162 at N25°L=126° (size/type 0700 Fkc on 18<sup>th</sup>) was the most interesting object among the many smaller (relatively speaking) other spots and groups visible during the month. It reached the size of 1120 millionths of the Sun's hemisphere – quite a size for a sunspot group so far past sunspot maximum. On the 26<sup>th</sup> an alert was issued due to a very large coronal mass ejection (CME) having originated within this group. At the SAGAS meeting that day, the guest speaker Dr Andrew Coates of Mullard SSL who specialises in the space weather environment showed some pictures of a CME taken via the SOHO space observatory which appeared at the south eastern solar limb – indicating the possibility of a very active sunspot group awaiting to rotate into view of Earth bound observers.

At the end of the month both this new (and as yet unobserved region) and 100162 which was now on the northwest solar limb and ready to vanish from view were the candidates for a powerful x-ray flare that triggered yet another CME that would if conditions were right affect the Earth environment in early November.

Members observing the Sun were Graham Boots and the Director.

MDF= 7.04 = 2 observers (N= 4.6; S=3.4 = 1 observer)

R= 95.88 = 2 observers

## **Observatory Report Session 2001/2002 – No 32**

Graham L. Boots - Curator of the Observatory

This session has seen twenty-eight observers nights held on Friday evenings when the sky conditions have been reasonable clear for some observing to take place. The attendance has averaged eight, which is an increase over the previous session by one. On one really clear evening twenty individual objects were observed and we finished in the early hours. On the evening of the 26<sup>th</sup> April 2002 I was able to show fourteen members and visitors the five naked eye planets all at the same time as they were all gathered in the sky within the south/west quadrant. On two of the Friday evenings when I was away Alex Vincent organised evening sessions at his Hill Barn observing site, which has such a clear and dark northern horizon. He was joined by members and one of our younger members, Kimberley Walsh took photographs of several constellations which are currently displayed on the observatory web site which can be found at [www.observatory99.freemove.co.uk](http://www.observatory99.freemove.co.uk) In the spring we had a third magnitude comet, C/2002 C1 (IKEYA-ZHANG) which was an easy object in binoculars. Alex took fine photographs of this comet and during the session was able to find and show members two other much fainter comets, C/2000 WM1 (LINEAR) and C/2002 04 (HEÖNIG). Four lunar occultations were timed, two by members and two by visitors.

This session we received the published final reductions from the International Lunar Occultation Centre in Tokyo for 1998 and 1999 where we submitted 19 and 35 times events respectively. David Chilard successfully used a hand held digital camera up to the eyepiece of the 29.2 cm Newtonian to photograph the Moon, he also undertook photography of planets and the Moon with the 20cm Schmidt/ Cassegrain. Leighton Clay used the new 12.5 cm Maksutov/Cassegrain on several occasions to photograph both the Sun and the Moon. After four attempts the curator gave up trying to use the double star mask with the 20 cm telescope to split close double stars, however the mask has been retained for any future attempts. Alex continued his programmes of photographing eclipsing binary stars at maximum and minimum as well as photographing comets for astrometric purposes, he submits his results to the British Astronomical Association. He also carried out some planetary photography. On the 16<sup>th</sup>-17<sup>th</sup> February 2002 and after several attempts Alex, Colin Thomson and myself successfully recorded the 4.8 hour fall and rise in magnitude of the eclipsing binary RZ Cassiopeia using 135 mm lens mounted piggyback on the 29.2 cm Newtonian with the video camera and it's ancillary

equipment. During the six hour observing session all the equipment behaved perfectly.

For the Stellar and Deep Sky section the constellation of Monoceros was chosen to study. This constellation contains the Rosette nebula (NGC 2237), which has an area 1° in diameter. With fifteen main road street lights now changed to full cut off, in the nineteen nineties, we were able, on two occasions, to observe this faint, low and southerly object using the 29.2 cm Newtonian fitted with a 40 mm Plössl eyepiece with the Lumicon ultra high contrast filter attached.

During this session we received visits from two groups of Cubs, a local church group and a ninth birthday party group. National Science Week was once again almost entirely spoilt by our weather with just one group having a clear evening. In all 43 visitors had clear evening skies this session.

On the 20<sup>th</sup> July 2002 thirty-nine members and friends attended the society's bar-b-que held at the observatory with at least twenty people making use of the observatory under a very clear sky.

Another activity at the observatory is the 'small instruments and equipment' section which makes available these items for long-term loan to members. This session two 60 mm refractors were donated by the late Dee Levers and a 4-inch reflector was donated by Peter Bartlett. In recent times three computer systems have been donated and are all currently out on loan and a fourth system is gradually being put together. In total the society currently owns forty items under this section and each now has a property owner sticker attached with an individual item numbering system. These items range from the Observatory itself down to an astro compass.

A new 8 X 50 Meade finder with cross wires giving a 5° field of view was purchased which is now fitted to the 29.2 cm Newtonian reflector. This has made it much easier to find objects than the previous finder, which only has a field of view of 2½°. The original finder has remained in place. The curator purchased a new 125 mm Meade Maksutov / Cassegrain along with a range of Meade and Tele Vue eyepieces, which have modern optical coatings. These are really good and can be used with the Schmidt / Cassegrain and the Newtonian. The control box for the Astrovid camera broke down and was replaced free of charge by True Technology Ltd., of Aldermaston even though it was long since out of guarantee. The declination electric control of the Newtonian now runs off a twelve-volt dry cell as the original step down transformer broke down. I thank Dave Storey and Colin Thomson for creating this new facility. There is now a two-way inter-

com between the observatory and the computer room. It is hoped that soon we will be able to complete the project of image processing between the observatory and the computer but there has been many set backs. In October the observatory suffered minor storm damage, which has now been repaired and the cause of the weakness has now been rectified.

The first Health and Safety Inspection was held at the observatory on the 27<sup>th</sup> July 2002, which will now be an annual event. This was carried out by Brian Halls, Glen Thomas, and the curator. Nine recommendations were made of which eight have now been implemented; the one remaining will be dealt with in November when the annual fire extinguisher inspection takes place.

I thank all those who have in so many ways helped in the operating and use of the society's observatory which brings enjoyment to so many plus the scientific data it provides.

### **Solar Section Report - November 2002**

Brian Halls Section director

Sunspot activity at the start of the month continued the pattern set over the last several months.

Sunspot activity was very much confined to the northern solar hemisphere during the first week of the month – though the largest group visible (region 10180 S10<sup>0</sup> L=303<sup>0</sup> size/type 530 Eki on 6/11/02) was in the southern hemisphere.

This large group, which was magnetically very complex, persisted for much of the second week of November reaching its maximum size (size/type 630 Fkc) on the 10<sup>th</sup>. It was also the source of a major proton flare which resulted in one of three coronal mass ejections (CME) that came out to the vicinity of the Earth on the 11<sup>th</sup> and 12<sup>th</sup>.

Interestingly, activity swung to the southern solar hemisphere at about this time, which included a very large naked eye group designated 100191 (S18<sup>0</sup> L=202<sup>0</sup> size/type 800 Fkc on 14/11/02), which appeared at the eastern solar limb on the 9<sup>th</sup>.

The number of sunspot groups declined by the end of the third week, though the quality of the groups on display was good – region 100191 was joined by another large active group - 100198 (S18<sup>0</sup> L=108<sup>0</sup> size/type 580 Fkc on 21/11/02). A disruption in the solar wind caused by an explosive solar filament resulting in a full halo CME was reported on the 24<sup>th</sup>.

For the remainder of the month activity returned to moderate levels with activity once more swinging towards the northern hemisphere.

Graham Boots and the Director observed the Sun on 15 days during the month.

MDF = 7.35 – 2 observers (N= 5.0; S= 3.5 – 1 observer)  
R = 66.83

MDF = Mean Daily Frequency of the number of active areas (AA). Each AA is a sunspot or group of spots, which is separated by at least 10<sup>0</sup> from another spot or group of spots.

R is the average relative sunspot number. The sum is found by counting the number of active areas (expressed as groups (g)) and multiplying this figure by 10. The total number of sunspots (f) is added to this to attain R. It is most commonly expressed as  $gx10 + f = R$ .

### **Exhibition Result**

Graham Boots

Our exhibition at Worthing central library has now ended and ran for two weeks. I feel it was successful with members of the public picking up so many of our leaflets and brochures; they needed to be replenished twice. I thank all those members who contributed, filling the space with colourful and interesting, and in some cases very up to date exhibits. Some items shown were incredible. There were no losses or damage and everything went smoothly. A letter of thanks has been sent to Jane Croper who is the Area Librarian. Thanks to all members who took part.

*April Lecture Reviewed - Report by Vanessa Wegner*

### **Getting Started with CCD Astronomy**

Alan Smith

Alan explained that he is a teacher at Christ's Hospital, a site that luckily is only minimally affected by light pollution. This is just as well because using CCD imaging means that each time an image is taken up to 1 million small detectors – pixels are employed. Each pixel records a staggering 70% of incidental light.

There are four companies, which make CCD cameras, Starlight Xpress, Apogee, Meade & SBIG. Apogee produce very expensive instruments, Meade models are not very easy to work, the remaining two companies produce the best products. They do however have different approaches. SBIG cameras use black & white film only; therefore a colour filter is required. They are an American company & there is only one UK importer,

Broadhurst Clarksons in London, you would have to wait 6 months for delivery! Starlight cameras are affordable & there are many UK distributors, they have also found a way of making colour and have high build quality. Alan recommended the Starlight MX5 camera, which costs approximately £650, however a second hand model would be about £400. In comparison the SBIG ST-237A starts at £1800.00. It is crucial that a decent mount is used, e.g. Meade LX200-Vixen GP, this is a very stable mount with a low periodic error.

Alan strongly recommended a fixed set up; a dome or a roll off roof makes life much easier & increases productivity. Alan's own DIY set up was £500; to buy the same would have set him back £2000. Alan also invested in a Kendrik Dew Sapper, such a device is extremely important for CCD imaging as it can take a long time just to set up. It will run for 10 to 20 nights off a battery before it needs replacing. It keeps the corrector plate only 1 to 2 degrees warmer than the surrounding air, which is just enough to keep away the dew.

When preparing for CCD imaging the first thing to do is set up the telescope and make sure it is balanced, also the polar alignment must be accurate. Then find a bright star and achieve rough focus, find a fainter star near your target and achieve good focus. Locate the target and centre. Expose one or more light frames and then take dark frames. Take colour frames if appropriate. Take flats if necessary or appropriate. Then move to the next target and repeat.

Alan recommended "GoTo" telescopes, it would, not surprisingly be very time consuming carrying out all the above by hand.

Alan also spoke about software packages; he uses MaxIm DL but also suggested CCD sharp, MIRA and Photoshop.

The last part of the lecture was devoted to CCD images taken by Alan and two of his colleagues. Alan demonstrated that what you may consider a bad image should never be thrown away because the beauty of CCD imaging is that you can play around with it, you could apply a slight filter, change the screen stretch and apply other techniques all of which can have quite a significant impact. Similarly if an image has a lot of "thermal noise" you can calibrate to clear the noise.

The talk concluded with the advice not to start by intending to photograph the whole universe in one night! CCD imaging is very time consuming and you would probably only take 1 to 2 images in a session.

The lecture was very inspiring and informative; the amazing images, which can be achieved using CCD technology, were truly awesome.

## *Notices*

### **BAA Circular**

Richard Miles

Bob Mizon has communicated the following:

#### **Stolen:**

Please be aware of a Meade LX200 8-inch f/10 reflector stolen from an observatory in Chard, Somerset on 2003 November 09. Its serial number is 837705. Its heavy-duty tripod, Telrad finder and diagonal were also stolen. It is marked with an ultraviolet pen as follows: "RSG TA20 2HL". If you are offered this telescope please contact your local police.

Thanks for your attention

## **WAS Quiz**

### **Christmas Teaser**

Brian Halls

What have these years all got in common?

1809

1847

1866

1885

1915

1934

1961

1999

2018

2037

2067

2094

Answer at the January Social Meeting

## Articles

### A Ghost Story

Presented by Brian Halls

Wintertime is here, and as the solstice approaches it is not only the time for the presenting of gifts, it is also the time for the telling of **ghost stories**.

Gather round the hearth, take off your shoes and warm your feet – no, on second thoughts better keep your shoes on...

Like all good wintertime ghost stories this one commences at another time of year. Our story begins on a warm summer's night in New York. In the early hours of 29<sup>th</sup> July 1953, John J O'Neill was studying the Moon with his 4-inch refractor. The waning Moon was 17 days old and the phase was very nearly 90% illuminated. The lunar terminator was close to the western (using the IAU nomenclature) shore of the Mare Crisium.

O'Neill was using a magnification of x90 and given the telescope he was using, he would have had a fine image of the Moon. As he studied the shoreline of Crisium he was glimpsing at two capes or *promontorium* as they are called in Latin – in the south, *Prom. Lavinium* and in the north *Prom. Olivium* (see enclosed map). With the approaching darkness, and with the terminator inexorably heading towards it he noticed something that surprised him. He saw what he believed to be a bridge linking these two headlands jutting into the lava plain sea.

O'Neill wasted no time – he increased his magnification to x250. He did not believe it to be a ridge but a bridge like structure that spanned the lunar bay for a distance of nearly 20 kilometres. It appeared that the rays of the setting Sun were shining underneath the span of the bridge and illuminating the mare surface out towards the east, while casting a shadow of the bridge onto the mare surface.

One can only imagine what must have gone on in the mind of O'Neill. He was not by profession an astronomer – he made his living as science editor of the *New York Herald Tribune* and wrote the biography of inventor Nikola Tesla – and now here he was, making science news himself!

He wrote off to H P Wilkins, who was Director of the Lunar Section of the British Astronomical Association and to Walter Haas of the Association of Lunar and Planetary Observers. Of the two, it is probably Hugh Percy Wilkins who is the more famous.

He was a skilled amateur lunar draughtsman – he is famous for his 300-inch hand drawn Moon map which has never been bettered and which was the result of many painstaking years of observing and sketching at the eyepiece. He was a little bit sceptical of the American amateur's announcement, but on the night of 26<sup>th</sup> August he turned his 15-inch reflector towards the Moon and began to survey the western borders of the Mare Crisium.

Much to his amazement a magnification of x300 revealed, "a bridge with sunlight streaming underneath it, and the shadow of the arch cast on the surface of the plain." Wilkins also went on to write later, "It looks artificial. It's almost incredible that such a thing could have been formed in the first instance, or if it was formed, could have lasted during the ages in which the moon has been in existence."

There was however a slight flaw to the observation. What Wilkins was looking at was a fraction of the size described by O'Neill. Wilkins wrote to O'Neill to congratulate him on his discovery only to learn that the observer had died quite unexpectedly prior to the arrival of Wilkins letter.

But O'Neill had begun something – other lunar observers were turning their telescopes to this small portion of the Moon and some were confirming what he saw.

Haas of the US based ALPO on the other hand was being more careful. He could not believe that selenographers had missed this object over hundreds of years of observation. Before reporting O'Neill's observation, Haas awaited a report from Paul Roques using the 12-inch refractor at the Griffith Observatory in Los Angeles. What he reported could not be more at odds with O'Neill and, more importantly what Wilkins was claiming.

Roques observations were with a much more powerful telescope than O'Neill had had at his disposal. The fan of light that O'Neill had reported and had taken for sunlight shining under the arch of the bridge could be explained away as sunlight shining through the pass between the two *promontoria* – the two headlands rapidly diminish in elevation towards the point where they nearly meet. Sunlight would then shine on gently rising terrain to the east and thus give the appearance of light shining under a bridge.

The structure of the two *promontoria* would also add to the illusion. Where *Prom. Lavinium* had a blunt beak like tip, *Prom. Olivium* ended as a long narrow ridge that actually extends to the west of Lavinium.

Instead of letting, what is now called O'Neill's Bridge quietly die, things were happening that would lead to the ruined reputation of an astronomer.

By now, many other amateur astronomers on both sides of the Atlantic were confirming the Griffith Observatory observations and the real nature of these lunar details, having observed for themselves the effect of a low Sun on the fine topographic detail in this small region of the Moon.

Wilkins would later become embroiled in further controversy when he recorded an interview with the BBC. Subjects covered ranged from astronomy to the strange new phenomena of flying saucers. In the broadcast edited version of the Wilkins interview let slip he appears to speculate about the artificial nature of the (non-existent) Crisium bridge and the link between that and flying saucers.

Wilkins remarked later about the interview, "It does not matter how carefully you explain things to most reporters, they always get things wrong!" Sadly the damage was done. The Associated Press in the United States picked up the BBC report in late December 1953.

One can only imagine the shock that went through the BAA at that time. In a somewhat acrimonious meeting of the BAA in November 1954, Wilkins was ridiculed for his involvement with the lunar bridge affair and resigned from the association soon after.

No one really believes in the 'lunar-bridge' anymore – it can just be filed away with Gruithuisen's lunar city or even the imaginary 'face' on Mars. The story recently reared its ugly head in a UFO magazine – and the suggestion was that the bridge was *real* and the inference was artificial too. Why little bald grey ugly aliens should travel across the light years of space in their flying saucers and then construct a bridge to travel only a few miles across the lunar landscape is not explained and seems highly implausible.

If you want to go 'ghost' hunting try looking when the moon is past full and about 90% illuminated – just as the night terminator approaches the western shore of the Mare Crisium. The next opportunity will be the morning of the 22<sup>nd</sup> (about 0730 UT) for a similar appearance and at this time of the year the sun is low in the sky and the moon is still bright.

Good hunting.

## The UFO That Wasn't

Brian Halls

In a recent issue of *UFO Magazine* (September 2002) a recent Hubble Space Telescope picture of the Copernicus region of the Moon was reproduced – with an interesting blow up of a saucer shaped object in the picture.

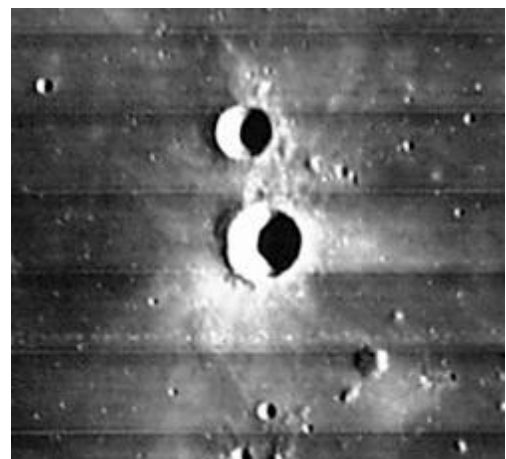


Was it an optical illusion or had the HST photographed a UFO?

Had they discovered an anomaly in the NASA data – well NASA is a US government sponsored body and anything the US government states about the subject of UFO's cannot be trusted (according to them)?

Sadly for ufologists everywhere, the 'strange object' was not a flying saucer.

The 'UFO' was in fact a bright ray crater, Bessarion, which lies to the north of the larger ray feature, Kepler.



The question is raised though; how could a widely read magazine make such a mistake. Are they so desperate to find UFO's that they have to 'engineer' them, by misidentifying naturally forming objects? Another question is again begged – how many other everyday

objects are classified as 'unidentified' so as to pander to the UFO believing public (and sell a magazine)?

The catch phrase, 'The Truth is out There', is often quoted by UFO enthusiasts – yes I can agree to that. The truth is out there, but it will not only be stranger than we can imagine, but it might also not be palatable to those seeking mysteries where none exist.

### ***What's on the Box***

*Saturday 14<sup>th</sup> December 2002*



11.30-11.50 ~ **The Sky at Night**

In the 600th edition of the programme, Patrick Moore interviews Astronomer Royal Martin Rees

*Monday 16<sup>th</sup> December 2002*



01.20-01.40 ~ **The Sky at Night**

In the 600th edition of the programme, Patrick Moore interviews Astronomer Royal Martin Rees

*Thursday 2nd January 2003*



09:30 - 09:45 ~ **Adventures in Science**

Supermassive Black Holes. Ben Silburn investigates the phenomenon of the black hole, a body in space with a gravitational force so powerful that not even light can escape

### ***WAS News News***

#### **Hubble photographs 'double bubble' in neighboring galaxy**

##### **Space Telescope Science Institute News Release**

A unique peanut-shaped cocoon of dust, called a reflection nebula, surrounds a cluster of young, hot stars in this view from NASA's Hubble Space Telescope. The "double bubble," called N30B, is inside a larger nebula. The larger nebula, called DEM L 106, is embedded in the Large Magellanic Cloud, a satellite galaxy of our Milky Way lying 160,000 light-years away. The wispy filaments of DEM L 106 fill much of the image. Hubble captures the glow of fluorescing hydrogen and sulfur, as well as the brilliant blue-white colors of the hot stars.

The very bright star at the top of the picture, called Henize S22, illuminates the dusty cocoon like a flashlight shining on smoke particles. This searing supergiant star is only 25 light-years from the N30B nebula. Viewed from N30B, the brilliant star would appear 250 times as bright as the planet Venus does in Earth's sky.



*edit: NASA and The Hubble Heritage Team (STScI/AURA); Acknowledgment: M.S. Oey (Lowell Observatory) and Y.-H. Chu (U. of Illinois)*

Lowell Observatory astronomer M.S. Oey and University of Illinois astronomer Y.-H. Chu are members of a science team studying DEM L 106. Along with their collaborators, Oey and Chu have made a clever use of the reflection nebula around N30B. By obtaining spectroscopic observations at various points across the nebula, they can study the spectrum of S22 from different angles. Remarkably, they have found that the star's spectrum changes with the viewing angle, suggesting that the star is surrounded by a flattened disk of gas expelled from its equator.

Astronomers R. Davies, K. Elliot, and J. Meaburn, who created the "DEM" catalogs of both the Large and Small Magellanic Clouds, originally cataloged DEM L 106 in the 1970's. N30B was discovered in the 1950s by astronomer K. Henize, who later became a NASA astronaut.

DEM L 106 was imaged with Hubble's Wide Field Planetary Camera 2 (WFPC2). Hubble data taken in 1998 were combined with data taken by the Hubble Heritage Team in late 2001.

The Space Telescope Science Institute (STScI) is operated by the Association of Universities for Research in Astronomy, Inc. (AURA), for NASA, under contract with the Goddard Space Flight Center, Greenbelt, MD. The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency (ESA).

## *Diary*

**December 11** *North American Star Parties - Owen Brazell editor of "The Deep-Sky Observer" published by the Webb Society.*

**January 8** *Society New Year Social*

**February 12** *Astronomical Imaging from La Palma - Nik Szymanek & Ian King*

**March 12** *Indoor Astronomy (observatory-remote operating) - Dr. Lilian Hobbs Southampton AS*

**April 9** *TBA*

**May 14** *TBA*

**June 11** *The Planet Mars - Jerry Workman Bsc., F.R.A.S.*

**July 9** *White Dwarf Stars - Konrad Maylin-Smith Croydan AS*

All Meetings (**bold**) are held on the second Wednesday of every month unless otherwise stated, at Heene Church Rooms, Worthing at 7.30 p.m. Meetings include the latest astronomical work, reports and, photographs by members. For further information please call 01903 521205, on the Internet at [www.was.org.uk](http://www.was.org.uk) or

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### *Note to Contributors*

Contributions & Correspondence for the **January** issue of WAS NEWS should be with the Editor by **January 1st**. All material for inclusion should be sent to the Editor.

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