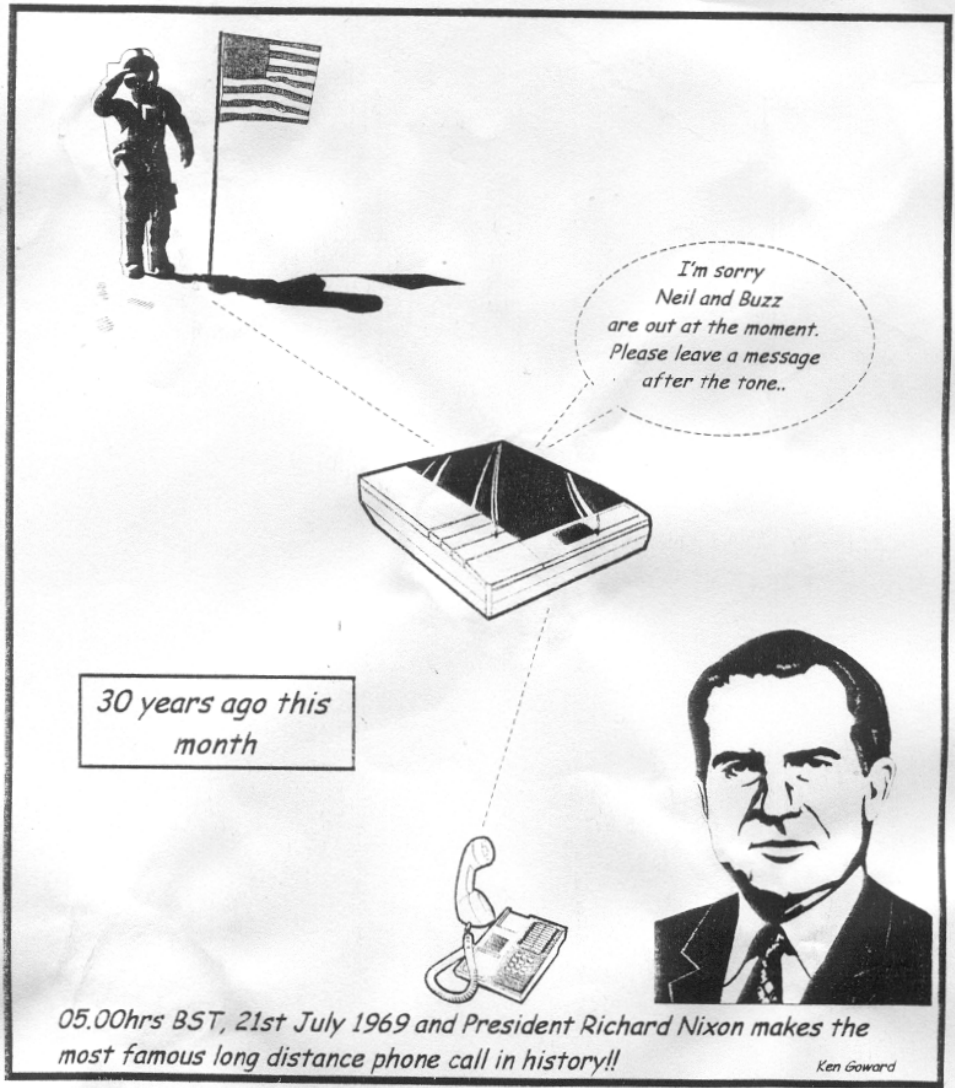


# ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313

JULY 1999



## Society News

### 1 Next Committee Meeting

The next committee meeting will be held on Saturday 18<sup>th</sup> September from 19:30 in the clubroom. As usual this is an open meeting and any one who is interested is invited to attend.

### Events for 1999

Event	Details	Date
Summer Barbecue	See other information in newsletter	31 <sup>st</sup> July?
Eclipse	Members to make own arrangements	11 <sup>th</sup> August
Astro Camp	Mid August	
Lecture meeting	Eclipse results	3 <sup>rd</sup> September
Summer Excursion	Will probable be to Greenwich	11 <sup>th</sup> September
Leighton Sky Camp	Phone Mike Cook [redacted] Venue is near Thetford	10 <sup>th</sup> to 19 <sup>th</sup> September
FAS meeting Cambridge		2 <sup>nd</sup> October
Open Weekend	To be arranged	16 <sup>th</sup> 17 <sup>th</sup> October
Christmas Meal	To be arranged	8 <sup>th</sup> December

Other events will be added to this list throughout the year

### Notes from the Committee Meeting Held on 19<sup>th</sup> June

- 1 **Christmas meal:** there are now 2 possible venues to investigate. The Wilford Bridge at Melton and the Dog at Grundisburgh. A final decision will be made once their Christmas menus are available.
- 2 **Open Weekend:** A long discussion was held on this topic, based on Ken Goward's discussion document. Items included:
  - a Enhance the display in the clubroom to include members work.
  - b Place reception desk at the bottom of the spiral stairs.
  - c Ensure all members have an identification badge.
  - d Investigate the possibility of expanding the display area.  
Borrow a classroom?

It was decided to change the times the observatory will be open, 20:00 to 22:00 on Saturday 16<sup>th</sup> and 14:00 to 22:00 on Sunday 17<sup>th</sup>. This will have to be confirmed with the school. Visitors will be able to see to see the observatory architecture in day light and return in the evening if they wish.
- 3 **Society logo clothing:** A catalogue has been left in the clubroom.
- 4 **Eclipse glasses:** A last batch of eclipse glasses will be ordered.

## NEW LIBRARY BOOKS

I have recently purchased two new books for the library.

*The New Solar System*, by Beatty, Petersen and Chaikin (eds), Sky Publishing Corporation and Cambridge University Press, 1999.

This book is superb - if you read only one book on astronomy this year, this book should be the one! In over 400 pages, it contains a summary of the latest scientific knowledge of the Solar System, including the findings of recent space probes such as Galileo and Mars Global Surveyor. The 1999 edition of the book is the fourth, and it is apparent that the publishers have by now perfected the formula. The book is very readable, lavishly illustrated and well structured, so that the reader can "dip in" for the latest information on a particular planet, for example. In summary - very highly recommended!

*Eclipse '99, Capture It On Film*, by H J P Arnold, Institue Of Physics Publishing, 1999.

This book is one of the current spate of titles aiming to cash in on August's total eclipse. It's a thin volume, aimed primarily at beginners. It explains the usual eclipse phenomena and illustrates the kind of pictures that various cameras and lenses can produce.

The library is housed in the Orwell Park Observatory. It holds a selection of astronomy books, videos and magazines. All members of OASI are welcome to use the library. Please contact me with requests for purchases of books, videos and software, or if you would like to donate any good-quality astronomy material to the library.

James Appleton

### Observatory Maintenance Log since 1981 (part 4) By Roy Gooding

1988

Decorating work continued right through the winter months. This was the first time any work had been continued after the summer period. Work continued on painting the spiral stair well walls, which was completed by the end of April.

Work commenced on a new area of the observatory tower, which had never been tackled before, namely the clubroom. The floor was painted together with sandtexing the stone areas of the walls. Two windows that had been in a very poor state, for as long as any one could remember, were replaced by the school under their normal maintenance scheme. The one in the stair well had been missing a pain of glass for at least the previous 10 years. Two of the balcony doors were missing pains of glass, these were replace by the school at this time. Previously these doors had been boarded up with sheets of plywood, for many years.

## Night Sky

All times GMT

### Sun

The sun will be rising approximately between 03:40 to 04:20  
The sun will be setting approximately between 20:20 to 20:00

### Moon

3 <sup>rd</sup> Quarter	New Moon	1 <sup>st</sup> Quarter	Full Moon
6 <sup>th</sup>	13 <sup>th</sup>	20 <sup>th</sup>	28 <sup>th</sup>

**Mercury** Mercury will be at inferior conjunction on the 26<sup>th</sup>. It will not be observable this month.

**Venus** Venus remains very prominent in the evening sky. It will be at greatest brightest on the 14<sup>th</sup>, at magnitude -4.5. By the end of the month it will be setting near sunset.

**Mars** Mars will be setting at 22:30 by the end of the month. Magnitude -0.2

**Jupiter** Jupiter will be rising by 23:00 at the end of the month. Magnitude -2.4

**Saturn** Saturn will be rising at 23:00 at the end of the month. Magnitude 0.3

**Uranus** Uranus will be rising at a little time after sunset this month Magnitude 5.8

**Neptune** Neptune will be rising about 30 minutes before Uranus. Magnitude 7.8

### Meteor Showers

Shower	Limits	Maximum	ZHR
Ophiuchids	May 19 <sup>th</sup> to July	June 9 <sup>th</sup> June 19 <sup>th</sup>	5
α Cygnids	July to August	July 21 <sup>st</sup> to Aug. 21 <sup>st</sup>	5
Capricornids	July to August	July 8 <sup>th</sup> July 15 <sup>th</sup> July 26 <sup>th</sup>	5
δ Aquadris	July 15 <sup>th</sup> to August 20 <sup>th</sup>	July 29 <sup>th</sup> Aug 6 <sup>th</sup>	20 10

Meteor source is the BAA Handbook

Additional work was also under way in the observatory. Opening the transit roof had always been a precarious procedure. It involved climbing onto the Transit roof and opening the shutter by hand. Originally the shutter had been open from the inside using a rack and pinion mechanism. This original mechanism still existed but the method of use was still a mystery, though it was assumed that some form of counter weight system must have been used. A new counter weight system was designed and fabricated by Martin Cook. This new method of opening the transit shutter was much safer, and works well with care.

Other work in the observatory included: repairing the observatory chair. Refurbishing the telescope periscopes, cleaning the telescope clock drive and painting the telescope.

**This was taken from the observatory log book**

Date	Description
20-Jan-88	Started sand texing stairs
27-Jan-88	Sandtexed walls at bottom of stair well
31-Jan-88	One periscope returned
03-Feb-88	More painting again
10-Feb-88	More painting again on stair well
17-Feb-88	More painting again
29-Feb-88	Under coated stair well window frames
	Started sanding steps into dome
07-Mar-88	Stairs into dome varnished
30-Mar-88	More painting. 2nd coat top of stairs, 1st coat bottom of stairs
20-Apr-88	More decorating
04-May-88	More painting
07-May-88	Removed window from clubroom. Will be replaced by school
11-May-88	Painted window frame in club room
	Sanded a second window frame
15-May-88	More work on doors
19-May-88	Replaced window frame painted last night
25-May-88	Fixed pulley at top dome shutter
	Painted window frame, sanded an other frame
01-Jun-88	More decorating work
31-Aug-88	Painted gloss on balcony window
14-Sep-88	Painted another window frame. Continued sandtexing in club room?
28-Sep-88	Sandtexing in clubroom, painted another window frame
05-Oct-88	More painted in clubroom. Sandtex and gloss
23-Nov-88	Painted club room floor

**ONE SMALL STEP - THIRTY YEARS ON**

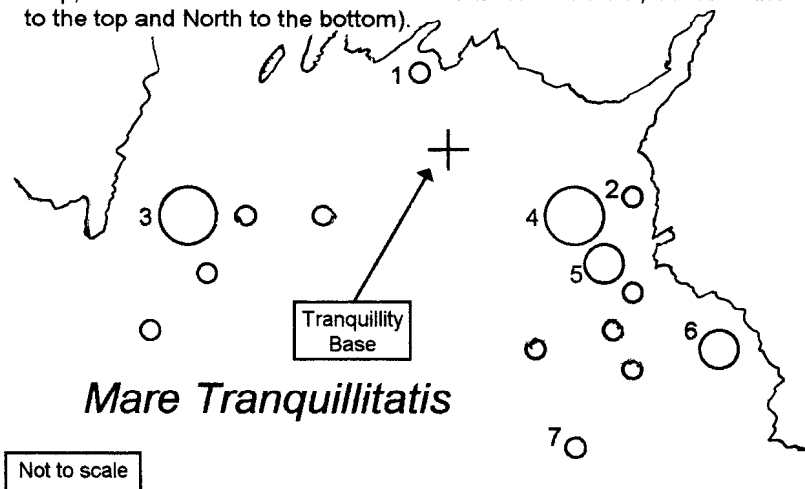
363ft of Saturn V Rocket, with an unimaginable 7,650,000lbs of thrust and the awesome noise created as its colossal form slowly rose from launch pad 39A must remain permanently etched in the memories of 1,000,000 plus spectators around Cape Kennedy (Including countless invited representatives of 'the great & the good' and a 3,000 strong press corps) and many of the estimated 600,000,000 TV viewers world-wide at 9.32am local time on 16th July, 1969. Sitting atop of this colossus and carrying the prayers of the world with them were Civilian Neil Armstrong (Commander), Lt-Col Michael Collins (CM Pilot) & Col Edwin "Buzz" Aldrin (LM Pilot). The Apollo 11 mission had begun and man would shortly set foot on another celestial body for the first time.

Apart from TV broadcasts, the trip to the moon was almost 'routine' as the Command Module (Columbia) and LEM (Eagle) flew at a maximum of 24,545mph towards a 357 seconds burn of the SPS to place them in lunar orbit on July 19th. There followed a period of system checks prior to separation of the two craft. On that first day of orbit, the crew reported the north walls of the suspected volcanically active crater Aristarchus exhibiting a 'luminosity' in the view through their binoculars. This Transient Lunar Phenomena\* (TLP) was simultaneously and independently confirmed by ground based observers.

At 100 hours into the mission, Armstrong fired the descent engine on Eagle for 30 seconds to begin their approach towards the target landing area on the Sea of Tranquillity. At an altitude of 9.1 miles a further 756 second burn began for final approach. All went well until 47,000ft when a series of programme alarms began to sound off in Eagle. Quite simply, the on board computer could not handle the heavy flow of information being fed into it. Steve Bales, the flight engineer in charge of computer systems back at mission control, surmised what was taking place and made the brave decision not to call an abort. At 1,400ft Armstrong realised that the auto navigational systems were leading Eagle to a landing on unsuitably rough ground, strewn with large boulders and a large crater. Lunar landings were always timed so that the sun would be low to the horizon and behind the LEMs. On the monotone surface the long shadows cast assisted the pilots spotting boulders and craters as well as giving some indication of surface relief/topography beyond whatever the ship's instruments indicated. This is much the same rationale that amateur observers adopt night to night as the lunar terminator progresses over the surface. Armstrong immediately switched to manual approach and began, with Aldrin, to look for smoother ground. Although essentially a rocket, at one sixth of Earth's gravity the handling characteristics of the LEM were very different and the attitude controls were configured in much the same way as a Helicopter. E.g tilt forward to move forward. Within a few moments, Charlie Duke (Capsule Communicator - CAPCOM - at Houston) told the crew they had just 60 seconds of fuel remaining. That was expected, although the crew had hoped to be on the ground before then. When Duke told

\* A term first coined by Patrick Moore to cover reported observed pinpoint flashes or colour & albedo variations on the lunar surface. The possible causes are subject of much speculation - surface meteor strikes or volcanic.

them they were down to 30 seconds remaining - it was defiantly time to land! Perhaps it would be best to quote direct from the voice recordings at this point. Eagle - *"Drifting to the right a little" "Contact light" "OK, engine stop"* Houston - *"We copy you down Eagle"* Eagle - *"Houston, Tranquillity Base here. The Eagle has landed"* Houston - *"Roger Tranquillity, we copy you on the ground. You've got a whole bunch of guys about to turn blue. We're breathing again"* The time was 2118hrs BST 1969 July 20th. The actual landing site, some 4 miles further on than planned, has been calculated as 0.67 degrees N 23.5 degrees E. The site is roughly 1/3rd of the way from the craters Sabine & Ritter towards the crater Maskelyne and a little towards the crater Moltke (see map, which uses the IAU nomenclature East to the left, West to the right, South to the top and North to the bottom).



**KEY TO CRATERS**

1. Moltke 2. Schmidt 3. Maskelyne 4. Sabine 5. Ritter 6. Dionysius 7. Manners  
 A period of intense check routines followed. Some years after the landing, Buzz Aldrin recalled that he was so busy inside the LEM that he didn't take or have time just to look out of his window and that was his one regret on the mission. Having donned their life support packs and EVA suits (designed to sustain the Astronauts on the surface in full solar radiation & temperature extremes from +240F in sunlight down to - 279F in shaded areas), it was time for the supreme moment of the mission and, perhaps, of all Space Exploration. Armstrong crawled out of the tiny hatch and down the ladder into the field of view of a crude black & white TV camera, whilst being watched by countless millions around the globe. The last rung of the LEM ladder was some three feet above the footpad and had to be jumped. Back to the voice tape: *"I'm at the foot of the ladder now" "The LEM footpads are only depressed in the surface about one or two inches although the surface appears to be very fine grained as you get close to it, its almost like a powder. Now and then its very fine" "I'm going to step off the LEM*

*now" "That's one small step for man. One giant leap for mankind"* 03.59hrs BST 1969 July 21st.

First things first, a small amount of surface dust was scooped up by Armstrong and placed in a special pocket on his spacesuit in case of any unforeseen problems which might lead to an early abort of the mission - at least they wouldn't go home empty handed. After a short while it was Aldrin's turn to join Armstrong in the EVA. Stepping onto the surface he uttered two words that seem to have captured and encapsulated all the descriptions given by all the Astronauts to follow him, *"Magnificent desolation"*.

Walking on the lunar surface in one sixth of earth's gravity and wearing suits with a combined total weight of 300lbs (obviously equalling 50lbs by earth standards) took some getting used to. The favoured method of walking was to spring/twist from the ankles, which would give the astronauts that curious loping/Kangaroo hopping gait so familiar to us on the film records. Alan Bean (LM pilot on Apollo 12) was later to say that he felt immensely strong - almost as though he were an Olympic athlete. The furthestmost distance traversed from the LEM was just 100 yards by Armstrong, more spectacular sojourns would follow on later missions.

Much time was spent erecting a flag (Stars & Stripes) and unveiling a plaque on one leg of the descent stage which bore the inscription *'Here men from the planet Earth first set foot upon the moon July 1969 AD. We came in peace for all mankind'*. The plaque bore the signatures of the three man crew and President Nixon. Other mementoes were placed around the landing site, including messages from world leaders and memorials to astronauts & cosmonauts who had died in exploration. Notable amongst these items but totally unofficial was a diamond set gold astronauts pin badge which had been presented to Deke Slayton (NASA's Chief of Flight Operations) by the wives of the Apollo 1 crew after the death of their husbands. A somewhat 'fingers down throat' telephone call was made to Armstrong & Aldrin by President Nixon (see front cover of this issue) when he took time off from answering awkward questions from Washington Post reporters to milk this historic moment for all its political worth.

It wasn't all ceremony and NASA scientists had at least some minor say in the exploration/scientific aspect of the mission. Experimental equipment was placed upon the surface to measure the Solar Wind. A Seismograph to monitor 'moonquakes' and meteor impacts. A laser reflector to facilitate accurate earth/moon distance measurement. A number of core samples were also taken, bringing the earthbound lunar rock samples up to approx. 48 pounds in weight. After 2hrs 14mins it was time for Armstrong, and Aldrin\*, to return to the Eagle. Once inside they had a five hour sleep (as if anyone could in those circumstances) in the cold and somewhat austere ascent stage.

It was time for one of the most nailbiting aspects of the whole mission - would the ascent stage engine fire or would the astronauts be marooned for eternity on the surface. All went well and a 435 second burn of the ascent engine took them back to lunar orbit and eventual rendezvous with Mike Collins in Columbia. Mike had spent his lonely time photographing the lunar surface. During a press conference before liftoff he had caused much laughter by asking the media to hang onto all the TV recordings etc - so that he could see what had taken place

\* Aldrin's EVA lasted 1hr 44mins.

# An Eclipse Chaser writes..

Nigel Evans

owing to the supreme irony that he was one of the very few people who couldn't see it live!

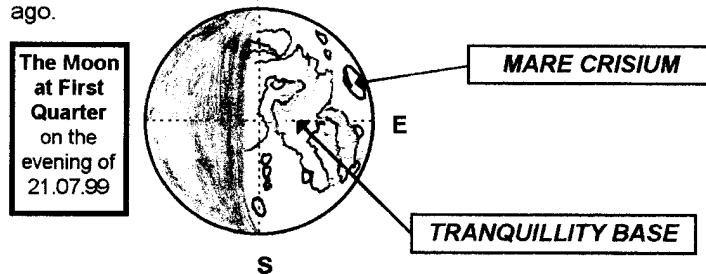
Following a flawless redocking and transfer of crew & samples, Eagle's ascent stage was jettisoned to crash into the surface (at the same time helping to confirm that the Seismograph left at Tranquillity base was functioning). Having made 30 orbits of the moon over almost 60 hours the SPS was burned on Columbia for 2mins 29secs on the far side to propel Apollo 11 towards home.

The trip home was notable for a TV transmission in which the crew told millions of viewers around the globe of their feeling of elation - and how grateful they were to everybody who had anything to do with the Apollo project. That caused more than the odd goosebump for we minions back at Marconi's who had played our own extremely small part in all this (see first article in this series - December 1998 issue).

Eight days after its awe inspiring liftoff, what remained of the mighty Apollo 11 spacecraft splashed down in the Pacific near Johnson Island and some 13 miles from the waiting carrier USS Hornet. On board ship was the President to greet them before they were sealed in a special unit for a three week period in case of any bacterial contamination from the moon, fears of which, were happily unfounded.

The late President Kennedy's target of putting a man on the moon and returning him safely to earth before the end of the decade had been brilliantly achieved.

On the anniversary - July 21st - the moon will be just a tad past first quarter and sets a little after midnight. Weather permitting, given the limited period of darkness before setting time and that it will be low to the horizon, why not take the time to observe the Sea of Tranquillity, which will be nicely on view, around the craters Maskelyne, Sabine & Ritter and ponder momentous events there 30 years ago.



**Footnote**  
Of course, if one were to believe all the conspiracy theorists and assorted other weirdoes, none of the above may actually have taken place - the whole event being a giant special effects con staged by American Politicians/NASA/Disney to claim to have beaten the Soviets to the moon. This information comes from a reliable source; Elvis P & Lord Lucan who, contrary to various rumours, actually work in the boiler room at BT Martlesham..

Ken Goward

At the workshop on solar eclipse photography on May 12<sup>th</sup>, I was able to show off some of my "nice" pictures from previous eclipses and some of the equipment used. I also showed some of my less successful efforts that wouldn't normally see the light of day - hopefully in an instructive manner.

Afterwards I thought it might be worth putting some of my ramblings into print, so here it is. Some of these may be so blooming obvious that you would not think to write them down, yet they can strike at the most inopportune moment i.e. during an eclipse! I will not own up in print as to which of these I have failed to observe. Some of this is not relevant if you don't have that sort of camera mentioned. I don't say anything about video as I don't own one.

**MOST IMPORTANT. IT IS NOT COMPULSORY TO PHOTOGRAPH THE TOTAL ECLIPSE - ONLY TO EXPERIENCE IT**

Use of negative or transparency is a personal choice: transparency exposure is more critical, whereas negative is more tolerant and different print results can be obtained from the one negative (often unintentionally!)

## The weather

How much/what you see is dependent on the weather

Exposure tables in books for totality etc. are for a clear sky - if it is misty/cloudy, your personal experience is the only guide.

UK tip: Don't stand near a street-light - during totality it will be dark enough for them to automatically switch on.

In clear skies it can be (very) warm. Many modern cameras are black and will get hot. Take some shade for your equipment - a white T-shirt is better than nothing.

Vibration/blurring - the biggest single cause of trashy eclipse pictures (after the weather!)

Vibration - it is essential use a cable release. A finger on the fire button moves the camera around, even when on a tripod.

Handheld exposures are only possible with short fast lenses and fast film.

Hand hold rule: Maximum exposure  $\sim 1/\text{focal length}$  (in mm) in seconds.

Use a tripod – the stronger the better for the longer /heavier lenses.

Don't take pictures too quickly –To determine how quick “quick” is, test this out on something other than an eclipse e.g the Moon in a dark sky or other high contrast target such as a photographic test target or good black/white printed material.

Maximum untrailed exposure  $\sim 500/\text{focal length}$  (in mm) in seconds. If this is an issue an equatorially mounted camera will be needed.

### Focus/image size

Long lenses e.g 500 mm upwards, do not have an infinity setting as temperature changes alter their effective length - they must be focused on a distant object, ideally the Sun/Moon. If the intention is to record 2<sup>nd</sup> contact, you need a solar filter to look through to focus beforehand.

Long lenses  $\Rightarrow$  small field of view  $\Rightarrow$  accurate pointing (Sun moves  $\frac{1}{2}^\circ$  in 2 minutes)

110 mm focal length  $\Rightarrow$  1mm image on film. Therefore 1000mm focal length  $\Rightarrow$  9 mm image (and a field of view of 1.3 by 2.0 degrees!)

Smart (=expensive) autofocus cameras need to point the autofocus sensors at an object i.e. the Moon, to let you even take a picture. Simpler autofocus cameras default to infinity if they can't find anything.

Short lenses can be safely left set to infinity, but do tape the focusing barrel in place as they can easily be knocked in the excitement of the event.

### Tripods

Don't have legs/column fully extended – the effect will be much the same as using a jelly. You can add a heavy weight to the central column to increase stability.

Check beforehand that the tripod head can tilt to the altitude of the Sun on the day.

Large heavy lenses on top of a tripod make the tilt head top heavy, so the locks must be twisted tight to avoid toppling (when pointing at high altitudes). This makes it difficult to adjust the pointing as the Sun moves across the sky. Give some consideration to counterbalancing or displacing the lens so that its centre of gravity is on /close to the tilt axis.

You do not need a “big and heavy” tripod if the focal length of the lens is “short” – how short “short” is determined by experiment. (I have used a table-top tripod, but the lens was a 17mm ultra wide angle!)

### Using the camera

Know your equipment, how it works, what it can do and that it is working properly – Do not try to find “p77 – Mirror Lock-up” in the guide-book during the eclipse!

Remember that it gets dark (like twilight) during totality – know the camera controls / use a (red?) torch. Many modern cameras have liquid crystal displays on the outside, but they cannot be read so easily in the dark!

On some cameras the shutter speed indicator in the viewfinder is a light next to some black numbers, but these numbers don't stand out against the dark sky of an eclipse.

Use new batteries – modern cameras are just so much junk with dead ones.

Don't bother to take more than a couple of partials before eclipse (to confirm that the camera operates and the film is winding on), unless it is to flush out a film. The partial phases are *nothing* compared to totality. (Take them afterwards and turn them upside down – nobody will notice!)

Do use an alignment frame i.e. an ordinary daytime frame, somewhere on the film (the beginning?) as eclipse pictures are often dark with invisible edges – if you don't, someone may choose to guess where the edges are for you with the inevitable consequences. By all means ask for the eclipse films to be returned uncut (if you can identify them from your other films!)

Don't forget to put a film in the camera! (I have done this but fortunately not during an eclipse)

Don't run out of film during totality – if you do, just curse silently and WATCH the spectacle. Next time(!) you will know better from bitter experience.

Don't change lenses or film during totality. Despite the fact you can do this smoothly at home in "x" seconds, it will seem like "10x" during totality and won't go as smoothly.

Do take the lens cap off to take pictures!

Do take the solar filter off during totality.

The Corona – There is no "correct" exposure for the corona. The inner parts are bright and become fainter further out – Try and use the "chevron sequence" i.e. stepping up 1 stop between exposures to the maximum exposure, then stepping 1 stop down back to the original exposure. This is particularly effective if your camera is one with a big exposure knob, marked "1000", "500", "250" etc., that is easy to handle in the dark. You do not even need to be looking through the camera.

The corona can be very asymmetric, with long equatorial streamers. If you use a longer lens e.g. 500mm, orientate the camera beforehand so that the long axis of the frame is parallel to the Sun's equator.

Have a note of what exposure times you are going to use for the (few) partials, 2<sup>nd</sup>/3<sup>rd</sup> contact, the corona etc., given that you will know which film and what aperture your equipment has (assuming clear skies!).

Be aware when third contact is about to occur – you risk permanent eye damage if you are looking through optical aid when the Sun reappears.

DON'T USE FLASH! You may need surgery to recover your camera if you do.

If you have anything more than a "simple" setup, write down what you are going to do and what equipment is needed – you wouldn't want to find out on eclipse morning that you had left a piece (e.g. camera body) behind, would you?

I can't think of any more right now.

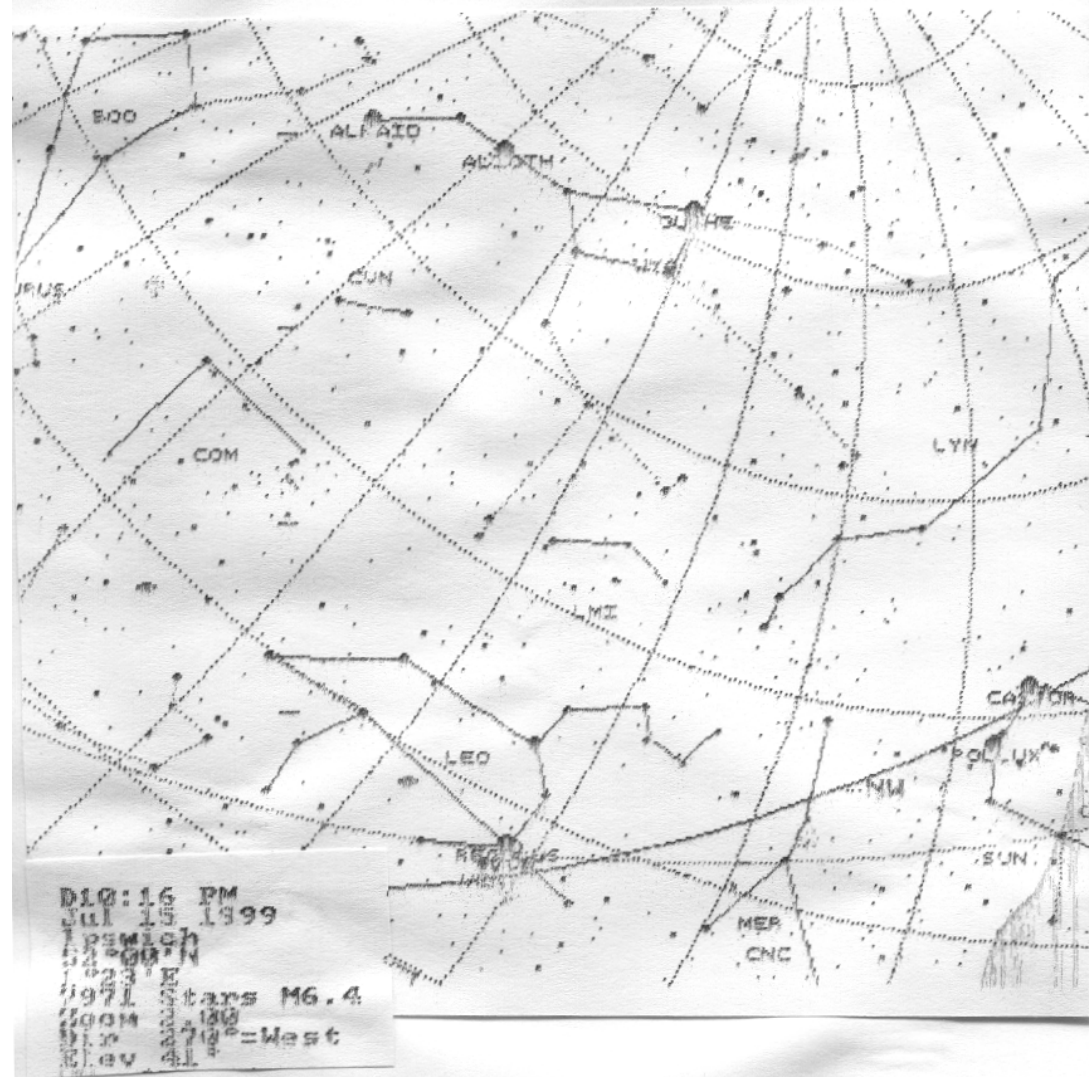
Good luck on the 11<sup>th</sup> August!

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## 11th August Eclipse Day

Any one not going to Cornwall or following the Sun, but might be interested in opening the observatory for a few hours.

Can they please contact any of the committee members to register an interest. This is only an idea at the moment as it might not be possible to get permission to open the observatory during the day.



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## OCCULTATIONS DURING JULY 1999

The table lists stellar occultation disappearance events which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

D or R	Date & Time (UT)	Lunar Phase	Sun Alt (d)	Star Alt (d)	Min Dist (rad)	Star	Mag
D	08 Jul 03:06	.32-	-5	23	.71N	ksi 2 Cet	4.3
D	09 Jul 02:53	.21-	-6	16	.81N	ZC 491	6.0
D	19 Jul 20:57	.45+	-7	19	.85N	ZC 1923	6.8
D	21 Jul 21:37	.64+	-11	17	.54S	FY Lib	7.1
D	25 Jul 20:57	.94+	-8	16	.68S	mu Sgr	3.8
R	21:57		-13	17			
D	25 Jul 21:51	.94+	-13	17	.74N	15 Sgr	5.3
D	26 Jul 23:01	.98+	-17	17	.28S	pi Sgr	2.9
R	00:19		-19	14			

James Appleton

### 1999 COMMITTEE

CHAIRMAN  
SECRETARY &  
WORK PARTY ORGANISER  
TREASURER  
MECHANICS  
NEWSLETTER CO-ORDINATOR  
BEGINNERS MEETING CO-ORD  
DARK SKIES & VISIT CO-ORD  
EQUIPMENT CURATOR  
LIBRARIAN

CO-OPTED MEMBER  
LECTURE CO-ORDINATOR

JOURNAL ARTICLES TO

CORRESPONDENCE ADDRESS

MEMBERSHIP

Home Phone Work Phone



E Sims [redacted] Ipswich Suffolk IP1 4HA

R Gooding OASI Secretary  
[redacted] Ipswich Suffolk IP1 6AE

M. Cook [redacted] Ipswich IP4 5PZ

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## Observing Programme For July

Dates	Observing Director	Activities
Mondays from 7.30pm	T Sampson [redacted]	General Observation
Tuesdays from 7.30pm	G Coleman [redacted]	Group Visits
Wednesdays from 8.00pm	M Cook [redacted] D Payne [redacted]	Nebular & Faint Objects
Thursdays from 7.30pm	G Coleman [redacted]	Group Visits
Fridays from 7.30pm		Double Stars

All members are welcome on any night, but on nights other than Wednesday please check with the appropriate director that the observatory will be open.

### Special Events

#### 1. Committee Meeting

The next committee meeting is going to be held on Saturday 18th September in the club room at the observatory at 7.30pm. All members are welcome to attend.

2.

#### Other Telescopes Night

Monday July 19th is the next extra opening night for the use of our other telescopes. If cloudy we will talk astronomy.

### Society Contact Details

	Home Phone	Work Phone
Chairman	D Payne [redacted]	[redacted]
Secretary	R Gooding [redacted]	[redacted]

Contact details for the full committee are on the inside back page.

e-mail queries: oasieng@btbcs.bt.co.uk  
WWW address: http://www.ast.cam.ac.uk:80/~ipswich/

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