

JOURNAL of the  
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

October, 1974

Editor: Mr. J. Deans  
[REDACTED],  
CAPEL ST. MARY,  
Nr. Ipswich,  
Suffolk.  
'Phone. GT. WENHAM [REDACTED]

The Sun: Will be in the constellation of Virgo this month.

Rotation No 1619 commenced Sept. 8.20d

" No.1620 " Oct. 5.47

" No.1621 " Nov. 1.76

Helicographic coordinates as at noon U.T.

	Oct. 4	Oct. 8	Oct 12	Oct 16	Oct 20	Oct 24	Oct 28
P	26.2°	26.3°	26.3°	26.2°	26.0°	25.6°	25.1°
BO	6.5°	6.3°	6.1°	5.8°	5.4°	5.1°	4.7°
LO	12.8°	320.0°	267.3°	215.0°	161.7°	109.0°	56.2°

#### Planetary Section.

Mercury: Not very well placed for observation this month, it will be at greatest Eastern elongation (26°) on Oct. 1st at 10 h U.T.

Inferior conjunction occurs on Oct. 25th at 13 h. U.T. The planet reaches its apparent stationary point of orbit on Oct. 13th at 23 h. U.T. and will be 0°.4 south of the Moon on 16th Oct. at 19h. U.T.

Venus: Still a morning star mag. - 3.4 at the beginning of the month low in the S.S.E. visible only for a brief while before sunrise, it will remain in Virgo this month.

Mars: Unsuitably placed for observation conjunction occurs Oct. 14 13h U.T. Mars also lies in the constellation of Virgo.

Jupiter: Is a brilliant object in the evening sky mag. - 2.3 easily found in the constellation of Aquarius. Recent observations have revealed the presence of the famous Red Spot in the south tropical zone. This can be clearly seen with the 10" OC. For rotation period system II should be used 9h 55m 40.65s.

Io week: Next month from Nov. 6th - 16th there will be a week set aside for international study of the innermost Galilean satellite of Jupiter Io. This moon of Jupiter has shown a number of enigmatic behaviours to observers using radio, infra red and optical telescopes, most of the unique properties are sporadic. A workshop is being set up to correlate observations at The Centre for Earth and Planetary Physics, Harvard University in February 1975. As many participants as possible are required to make observations during Io week.

Saturn: Is a morning star mag. + 0.3 moving direct and eastward in the constellation of Gemini now visible in the Eastern sky before midnight. on Oct 9th at 02h.U.T. Saturn will be 3°N of the Moon, the Moon will be near last quarter. The planet reaches its apparent stationary point of orbit on Oct. 31st. at 16h U.T. Thereafter it retrogrades until the end of the year.

#### LUNAR SECTION.

#### Moon Phases:

Lunation 641.	New Moon	Oct. 15	12h. 25m U.T.
	First Quarter	" 23	01h 53m U.T.
	Full Moon	" 31	01h 19m U.T.
	Last Quarter	Nov. 7	02h 47m U.T.

Apogee Oct. 24th 11h.U.T. Perigee Oct. 12th 16h.U.T.

Next month there will be a total lunar eclipse on the 29th.

Occultations:	Oct.	5th	2h	04.4m	UT.	53 Tau	mag.	5.4 R
	"	6th	3h	47.2m	HW	247B Tau	"	5.7 R
	"	7th	4h	03.9m	UT	o Tau	"	4.9 R
	"	8th	4h	20.4m	UT	16 Gem	"	6.1 R
xi 1	"	21st	17h	31.0m	UT	36 Sgr	"	5.1 D
xi 2	"	21st	17h	44.0m	UT	37 Sgr	"	3.6 Graze
	"	25th	21h	27.2m	UT	2C 3259	"	7.4 D
	"	26th	22h	23.1m	UT	2C 3371	"	6.4 D
	"	27th	23h	55.5m	UT	19 Esc	"	5.3 D

The narrow track of observation for the grazing occultation starts approximately  $2^{\circ} 50' N$  and ends about  $20^{\circ} 52' N$ . the star xi2 Sagittarii or 37 Sgr. starts the graze around 17h 44m UT at the beginning of the track, about four minutes or so later the graze should be visible at Shelley. Precise timing to 1 sec. is important and this is where a bleep signal can be tape recorded to obtain such accuracy.

Moonrise on the 31st will be at 12h 42m UT. Moonset 21h 14m UT, so meteor observers please note moonset time.

The moon near first quarter will be 30% illuminated.

Meteor Section: This month the Orionid shower occurs from around the 16th to 26th maximum ZHR being on the 21st, the same night as Charles' grazing occultation event, so why not make a night of it and do some meteor observation as well. The radiant will be rising shortly after midnight B.S.T. but will not be on the meridian until about 4h 30m UT. altitude  $53^{\circ}$ , the shower is noted to have a multiple radiant, persistent trains and is favourable.

Fireball Reports: On the evening of the 19th Aug. 1974 at 23h 30m B.S.T. a Fireball was observed in the constellation of Cygnus. The object was very white and moving very fast in the direction of Jupiter. Just after passing the constellation of Delphinus the object broke up into a very wide trail with fragments shooting off the sides. About  $15^{\circ}$  north of Jupiter the fireball went completely extinct with no visible after trail or sonic boom. Object started about mag.-1 and progressed past Jupiters mag and ended finally about 1.5. Believe object to be a member of the Delta Cygnids which had a maximum the 20th Aug. Anyone who can confirm this observation please contact Mr. T. Cardot at Ipswich 59887, or the meteor section director.

J. Deans observing from Capel St. Mary reports seeing a brilliant fireball mag.-3 on the evening of Sept. 10th 9h 57m BST. The fireball started in the area between Cepheus/Cassiopeia, moved S.W. through the constellation of Cepheus and finished in the area bounded by Draco, Lyra, Cygnus and Cepheus. The nucleus of the fireball was intense white with four trails mag.-1 of a yellowish texture, its motion lasted some 3 seconds before the nucleus disintegrated leaving the trails still visible for about a second.

Anyone seeing any of the above who can give some more information please contact the section director as soon as possible.

Variable Star Section: The variable star section has been very busy throughout July and August and have submitted the following reports:

NAME	INSTRUMENT	CODE
T. CARDOT	80mm O.G.	TC
S. FLOOPY	76mm O.G.	SF
D. BARNARD	10cm Spec.	DB

Observations of

M CORONAE BORHEALIS-- TC, JUN (20) 7.0, JULY (1) 6.7, (3) 6.9, (9) 6.5,  
(20) 6.3, (29) 6.3, AUG (19) 6.0, (26) 6.3.

M SCUTI TC-JUL (1) 6.0, (3) 5.8, (9) 6.1, (20) 5.7, (24)  
5.8, (29) 5.5, AUG (19) 5.5, (26) 5.4

M CYGNI TC, JUN (20) 6.0, JUL (1) 5.8, (3) 6.2, (9) 6.1,  
(20) 6.2, (24) 6.3, (29) 6.2, AUG (19)  
5.9, (26) 5.7.

AG PEGASI TC, AUG (19) 8.4, (26) 8.4

TC PEGASI TC, AUG (26) 7.5

It is encouraging to think that we as a society are doing some serious work in this field. Tom Cardot, whom most of the active members know by now, has also plotted some light curves of variables which are in the library (not to be removed).

GRAZING OCCULTATION: by Charles Radley.

The Moon is closer to us than the background of stars. The Moon moves, whereas the stars are fixed, relatively. This means that from time to time the Moon passes in front of a star and blots it out. This is called an occultation. Accurate timings of these sent up to R.G.O. at Herstmonceux enable the Moon's orbit to be constantly monitored, and predictions for these events have been in almanacs for donkey's years.

In more recent times the BAA Handbook has held predictions for "grazing occultations". The Moon is not a perfectly smooth body (as any small telescope shows) and the edge of the Moon has a serrated appearance due to valleys and mountains. Occasionally from small regions on the Earth's star will touch (graze) the edge (or limb) of the Moon and it can be seen to disappear behind mountains and reappear in valleys many times in a short period of time. This is known as a grazing occultation. Not only is such an event interesting to watch, but if the observer records to an accuracy of a second the moments and duration of the star's being invisible and send them up to R.G.O. Herstmonceux, it enables an extremely good fix on the Moon's position and the relief at that part of the lunar limb to be made. The last such event in the Ipswich area was in March 1972, when the Society was still (frankly) just getting off the ground. The next such event will be on October 21st, and I received the predictions exactly a year beforehand, with plenty of time. Following a conversation with Gordon Taylor in charge of grazing occultation work at Herstmonceux, to whom I am very grateful for help and information, I decided the best way to set about the project was to warn you up with some dummy runs observing ordinary occultations from the same stations that were to be used for the graze.

The observation station for the graze is critical, and the graze can only be seen from a very narrow track. Delta Sigma is a big word, and, as far as I know, meaningless, so don't panic. If you are on the track of delta sigma<sup>20</sup>, the star will touch the mean lunar limb (astronomer's substitute for mean sea level on the Moon). As delta sigma<sup>-1</sup>, the star will, at its closest, be one second off arc from the mean lunar limb. It turns out, from the known lunar profile, that a graze will be seen from tracks with the following values of delta sigma: 0.6, -1.1, -1.3 to -1.4, -1.6, 2.35, and a few others. Two tracks with a difference of delta sigma = 0.1 (tracks of 1.1 and 1.2 say) will run parallel and be about 1/2 mile apart. Unfortunately, the error in prediction could equal that, and a very small inaccuracy means only an ordinary occultation will be seen.

This is where YOU come in. Why not join the merry band of small Astronomers who hope to observe this event. The more stations we have, the more likely that somebody will catch the graze.

Continued....

I have decided that between delta sigma -1.3 to -1.4 will afford the best chance of catching the event. The track of this value runs S-W and through the village of Shelley (a suitable spot being a very flat area). Shelley lies between Hadfield and Stratford-St-Mary, a location map was provided in the August S.S.I. newsletter. The nearest S.S.I. member is in fact our hard-working editor John Deane.

Dummy runs were performed on April 26th, May 26th and July 2nd. April 26th: clear night, but there just wasn't any occultation! May 26th: haze-on - the occultation was observed by many observers, but Tom Cardot and I missed it and were very irritated. July 2nd was clouded out. The procedure that has been adopted is to meet at the Chequers pub in Raydon (nearest pub to the observing stations).

On October 1st there is an ordinary occultation just before the graze. Ordinary occultation at 17h 30m U.T., graze at 17h 44m. This is half past 6 and quarter to 7 P.M.T. (we do not change to S.S.T. until 27th October) which means we will have to be on station by 6 p.m., and prepared by 6.15 p.m. There will not be time for a jura at the Chequers until after the event. I will be outside the Chequers and waiting from about half-past-five and will probably wait until quarter past six. If you are late go to Shelley and wander round the countryside until you see telescopes. Shelley is not a very big place but it is very remote.

The observing technique will be explained upon arrival. Please bring along item(s) from the following list, as many as you can get hold of: portable tape recorder of some sort with suitable microphone and tape or cassette with good batteries, car, battery operated radio able to receive short wave at 4.5MHz or 7c/sx, which is about 65 or 70 metres wavelength, fairly portable telescope, stopwatch, two two-pence pieces for the telephone, battery operated buzzer with push button to make beep signal.

I will end my article with this. At all our meteor watches, social functions (not all of which are mentioned in the newsletter for various reasons) and so on, there is just a handful of the same people who turn up. This is U.K. as far as it goes. Those who come have a thoroughly enjoyable time, almost without fail. But there are about sixty members of the society who hardly ever see and who receive this newsletter. Why not come to some meteor watches and mix with society members. You'll make plenty of friends and have a great time. Don't worry about breaking the ice - there isn't any to break. We would love to see some new faces at society events. Above all, don't hesitate to telephone or call round at the houses of committee members (I hope they don't mind me saying this) because I always am, and at the most awkward times usually, and with the most trivial things to say too, and I am none the worse for it.

Let me repeat that things happen which must not or cannot be printed in the newsletter and which you will hear by word of mouth, if you come up to the observatory or participate more with the society. This is not be crouching, this is just a statement of fact. I wouldn't care if I was the only member of the S.S.I., it is in your own interests to participate, you will get far more out of the society if you put something in, and it's not talking about money. Society members are an incredible cross-section of the public, but we are all linked by our interest in astronomy.

WINTER STOTTING: Three minor planets are visible in the constellation of Aquarius this month - Juno about 5th mag., Ceres mag. 9.1 and Flora 5th mag. Juno rises close by 57, 09 aqr. around Oct. 13th to 20th, Ceres passes close to the 5th mag. star at R.A. 22h 33m Dec. -24° approx. from Oct 13th to 20th and Flora will be moving between 35 and 41 aqr during most of October. Those interested in astrophotography may like to take some photographs over a series of days to show the motions of these minor planets. If you haven't got a driver camera don't worry - some excellent results have been achieved by manual guidance of cameras mounted on top of telescopes using an extrafocal trace of a star kept in the field of view. See details in the library for further information.

Timecheck: October 27th 2 a.m. B.S.T. we revert to Astronomers Universal Time, or more commonly known as Greenwich Mean Time, so don't forget to put your clocks back 1 hour.

(Ed.) Whilst making a recent observation of Jupiter and the Red Spot Kevin Dye and myself wondered if the C.E.D. filter, i.e. the Kodak Step 3 tablet, would extinguish any of the satellites of Jupiter, thinking about the 10 week coming up soon. We thought possibly magnituded comparisons could be made of the satellites. This worked up to a point with all but one satellite extinct, and we are not sure which one this was. But what was interesting to note was the difference in contrast the filter made to the surface features of the planet.

#### ARTIFICIAL SATELLITES by J. Haywood.

Volunteers are wanted to help form an artificial satellite section. The observing of satellites is particularly suitable for those members without telescopes, as very little equipment is needed. Would anyone who would be interested in the observing, timing and recording of satellite data please contact John Haywood at [REDACTED], Ipswich - 'phone [REDACTED].

We welcome the following new members to the Society:-

Mr. Clint Mann, [REDACTED], Ipswich.  
Mr. A.D. Murdie, [REDACTED], Bury St. Edmunds.

#### LIBRARY NOTICE

The following list of books are in your library to be checked out at your convenience:-

<u>NAME OF BOOK</u>	<u>AUTHOR</u>
APOLLO, MISSION TO THE MOON.	Charles Combs.
ASTRONOMY, FOR "C" LEVEL.	Patrick Moore
ASTRONAUTS, BOOK OF	
ASTRONOMY, BOOK OF	Dr. H.C.Kings
AUTOMATIC SCOUTS OF OUTER SPACE	Pamphlet
COPERNICUS, NICHLOS	Jerzy Szperkowicz
ASTRONOMY, INTRODUCTION	J.W. Sidgwick
FIELD GUIDE TO THE STARS AND PLANETS	Donald Menzel
FABRIC OF THE HEAVENS, THE	S. Toulman
MAJESTIES ASTRONOMERS, THEIRS	C. A. Koran
MOON, MEN ON THE	John Raymond
MOON, THE INVASION OF 1969	Peter Ryan
MOON, USSR EXPLORES	(Pamphlet)
PLANETS, 20th CENTURY DISCOVER	Isaac Asimov
POPULAR STAR ATLAS Epoch 1950	
PLANETARIUM, A GUIDE TO ARMAGH	(Pamphlet)
PHOTOGRAPHY, BASIC STILL	(Pamphlet)
PLANETS, EXPLORE THE	Iain Nicolson
PHOTOGRAPHY, HOW TO DEVELOP, PRINT AND ENLARGE	Samuel Epstein
SPACE, THE BOYS BOOK OF	Patrick Moore
SKY, SECRETS OF	Guide Ruggieri
SPACE	Patrick Moore
SPACE, EXPLORING	Roy Wervill
SPACE, THE QUESTION AND ANSWER BOOK	Ruth Sonneborn
UNIVERSE, ALL ABOUT THE	David Dietz
WATCHERS OF THE SKIES	W. Ley
WONDERS OF THE SKY	Mary Proctor

Compliments to Nigel Gage for donating the following books for the Library:-

- THE UFO EXPERIENCE
- PROFILES OF THE FUTURE

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

PROGRAMME FOR OCTOBER, 1974

MONDAYS: from 7.30p.m. WEATHER PERMITTING GENERAL OBSERVATION PERIOD.  
Director: G. Collier, [REDACTED] Church St. Chelmondiston,  
'Phone Woolverstone [REDACTED]  
and P. Carroll, [REDACTED], Ipswich.

14th October,  
20th "

TUESDAYS: from 7.45p.m. DOUBLE STARS SECTION

Director: D. Bearcroft, [REDACTED] Ipswich, 'Phone [REDACTED]

1st October  
15th "  
29th "

WEDNESDAYS: from 7.00p.m. Solar, Lunar & Planetary Section

Director: R.M. Cheesman, [REDACTED], Ipswich.

9th October,  
23rd "  
from 8.30p.m. 2nd "  
16th "  
30th "

THURSDAYS: from 9.00p.m. VARIABLE STARS SECTION.

Director: T. Cardot, [REDACTED], Ipswich 'Phone [REDACTED]  
and D. Barnard, [REDACTED] Ipswich, 'Phone [REDACTED]

3rd October  
12 - 10th "  
17th "  
- 24th ""  
31st "

FRIDAYS: from 7.30p.m. NEBULAR & FAINT OBJECTS SECTION

Director: M. Stow, [REDACTED], Ipswich  
and R. Hazlewood, [REDACTED], Ipswich 'Phone [REDACTED]

11th October  
25th "

FRIDAYS from 7.30 p.m. LUNAR & PLANETARY SECTION

Director: J. Deans, [REDACTED], Capel St. Mary 'Phone GT. WENHAM [REDACTED]  
and K. Dye, [REDACTED], Ipswich, 'Phone [REDACTED]

4th October  
18th "  
1st November.

MONDAY 21st October, 1974. Director OCCULTATIONS SECTION.

Director: C. Radley, [REDACTED], Wherstead, Nr. Ipswich,  
'Phone Ipswich [REDACTED]

Grazing occultation of Star 2759 at Magnitude 3.6  
Meet at the Chequers Inn, Raydon, Nr. Ipswich at 6p.m.

SATURDAY - 19th OCTOBER, 1974 METEOR SECTION.

Director: S. Flory, [REDACTED], Ipswich, 'Phone [REDACTED]

ORIONID METEOR SHOWER, Meet at entrance to Foxhall Stadium  
at 10.00p.m. If the weather is against us this  
Meteor count will follow the Grazing Occultation  
Meeting at Raydon.

SATURDAY 19th OCTOBER, 1974

7.00p.m. Visit to Observatory by Woodbridge 41 Club (To be confirmed)  
Organised by R.M. Cheesman, [REDACTED], Ipswich.

THURSDAY from 7.00p.m. to 9.00p.m. Visit to Observatory by 29th Ipswich Cubs Group

" 7.00p.m. to 9.00p.m. Visit to Observatory by 29th Ipswich Scouts  
arranged by R.M. Cheesman, [REDACTED], Ipswich

and D. Brown, [REDACTED], Ipswich

Notes: Committee Meeting at Chairman's house Monday 7th October at 8.00p.m.