

November 1975

JOURNAL of the  
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

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# WHAT'S UP? The Solar System as seen from Ipswich, November 1975

SOLAR SECTION. The Sun will be moving through the constellations of Libra and Scorpius this month. We are now back on G.M.T. time or U.T. and the Sun will be rising about 07 hrs. U.T. at the start of the month and setting around 16 hrs 30 m. U.T.

Synodic rotation No. 1634 commenced October 22.33d.  
Synodic rotation No. 1635 commences November 18.64d.

## Heliographic Co-ordinates as at noon U.T.

	<u>P</u>	<u>Bo</u>	<u>Lo</u>		<u>P</u>	<u>Bo</u>	<u>Lo</u>
Nov. 4th	+24.0°	+4.0°	186.4°	Nov. 20th	+20.0°	+2.2°	335.4°
" 8th	+23.2°	+3.6°	133.6°	" 24th	+18.7°	+1.7°	282.7°
" 12th	+23.3°	+3.2°	80.9°	" 28th	+17.3°	+1.2°	230.0°
" 16th	+21.2°	+2.7°	28.2°				

PARTIAL ECLIPSE of the Sun will occur on the 3rd visible from southern South America and most of Antarctica but unfortunately not from Great Britain. The eclipse starts 11 hrs. 15.6m. U.T. and ends at 15 hrs. 15.9m. U.T. At maximum it has been predicted that 96% of the Sun's disc will be obscured.

MERCURY: Will be in superior conjunction on the 28th at 21 hrs. U.T. At the start of the month Mercury will be 15° West of the Sun rising in the morning at 05 hrs. 30 m. U.T. magnitude - 0.8. To assist in its location the geocentric co-ordinates are as follows.

Nov. 4th.	R.A.	13 hrs. 40 m.	Dec.	-8° 21'
" 9 th.	R.A.	14 hrs. 09 m.	"	-11° 31'

VENUS: Is a splendid object in the morning sky visible to the naked eye at Sunrise, greatest western elongation occurs on the 7 th (47°) magnitude -4.1 On the 29th Venus will pass close by Spica at 20 hrs U.T. and also on the 29th Venus will be passed by the Moon.

MARS: Now rises around 19 hrs. U.T. at the start of the month, Mars is moving direct around the boarder of the constellations Taurus and Gemini, it will reach a stationary point on November 6th at 14 hrs. U.T. there- after moving in a retrograde manner. The Moon will be near Mars on the 21st.

JUPITER: Magnitude -2.4 and 156° eastern elongation is retrograding in Pisces. The Moon will be near Jupiter on the 15th.

SATURN: Rises about 21hrs 40m. U.T. at the start of the month, magnitude +0.4 (98°) western elongation. Saturn is in Cancer moving direct until the 15th when it will reach a stationary point in its orbit and start retrograding.

## LUNAR SECTION

Moon Phases	Lunation 654
New Moon	Nov. 3rd 13 hrs. 05 m. U.T.
First Quarter	" 10th 18 hrs. 21 m. U.T.
Full Moon	" 18th 22 hrs. 28m. U.T.
Last Quarter	" 26th 06 hrs. 52 m. U.T.

Perigee	Nov. 2nd 01 hr. U.T.	Apogee	Nov. 14th 00 hr. U.T.
"	" 30th 01 hr. U.T.		

TOTAL ECLIPSE OF THE MOON will occur on the 18th which will be visible from the British Isles. The eclipse begins with the Moon entering the penumbra at 19 hrs. 26 m. U.T.  
umbra at 20 hrs. 39 m. U.T.  
total eclipse begins 22 hrs. 03 m. U.T.  
middle of eclipse 22 hrs. 23 m. U.T.

The Moon then starts to leave the umbra at 22 hrs. 44 m. and completely leaves the umbra at 00 hrs. 08 m. It finally leaves the Penumbra at 01 hrs 21 m. U.T.

## Lunar Occultations

Nov. 7th	ZC 2710	Mag. 6.8	D	17 hrs. 01m.	U.T.
" 13th	ZC 3462	" 7.5	D	16 "	59m. U.T.
" 13th	ZC 3477	" 6.6	D	20 "	43m. U.T.
" 21st	ZC 947	" 5.2	R	19 "	48m. U.T.
" 23rd	ZC 1234	" 6.1	R	22 "	09m. U.T.
" 24th	ZC 1359	" 5.1	R	23 "	33m. U.T.
" 26th	ZC 1482	" 6.3	R	02 "	41m. U.T.
" 27th	ZC 1605	" 6.2	R	04 "	53m. U.T.

## ASTRONOMY FOR BEGINNERS

Last months' meeting on Foxhall Heath turned out very promising, about fifteen people turned out. There were plenty of telescopes and plenty to see and learn about from Mr. Cheesman who had obviously done quite a bit of research prior to coming. It certainly was most encouraging to see more than the usual band of regulars at the meeting and let's hope that many more will turn up for the next meeting.

## OPEN DAY, OCTOBER 4TH.

Something like 150 people attended the open day this year, although perhaps not as many as the last open day they helped to swell the funds.

Our grateful thanks must go to all those members and wives who participated to make the day a success and of course we must also thank all those people who attended and gave us their support.

## ASSISTANT EDITOR.

Due to a change in the location of my full-time employment brought about recently as a result of the present economic climate, I find myself left with extremely little time to devote to my family and to the responsibilities of running a home. It is for this reason that in the new year the position of assistant editor will be open for nomination with a view to possibly eventually taking over editorship.

However, in the interim period I will continue to the best of my ability to devote part of what little time I have to keeping the journal flourishing. Anyone wishing to be nominated at the next A.G.M. should contact me, Mr. R.M. Cheesman, or Mr. Stow, Secretary.

J.D. DEANS Editor.

## British Astronomical Association.

If there are any members of our Society who would like to join the B.A.A. there are membership forms in the Observatory library or contact Mr. R.M. Cheesman.

## S.A.E.s

Every so often we request stamps to cover the posting of the Monthly Journal. As the Journal is printed out of the Society's funds it would be appreciated if those members receiving their Journals would send additional stamps to cover the increased postal charges and also send stamps to cover posting Journals when they are requested to do so. There is no need to send envelopes as the Society has purchased a large quantity.

Stamps should be sent to Mr. R.M. Cheesman, [redacted], Ipswich.

FILM NIGHT Friday 31st October, 1975 starting at 8p.m. at the Friends Meeting House, Fonnereau Road, Ipswich.

As advised in last month's Journal we are starting our winter series of lectures with a film night and it would be appreciated if you could muster up as many friends to come to this meeting. We have three films to show which will take approx 1½ hours to show.

## The Geology of the Planets.

On Friday 5th December also at the Friends Meeting House, one of our members, Mr. R. Markham, B.Sc. of the Ipswich Museum will be giving a talk on the Geology of the Planets. Full details of this lecture will be published in next month's Journal, but meanwhile please make a note of it in your diary.

This month we have two major showers active, the Taurid and the Leonid Showers. We are holding three meteor counts this month, on the 8th, 15th and the 29th, all being held on Saturdays at Foxhall Stadium.

The Meetings will start from 9p.m. and we will meet irrespective of weather conditions.

Minor Showers in November.

1. The S. Taurid - Arietid Shower reaches maximum on the 5th of November (Bonfire night!) The shower is closely connected with the Comet Encke, but the stream is now virtually extinct, Z.H.R. = 2?
2. The Cepheids. A stream discovered only very recently and badly needing observation. Z.H.R. about 12, maximum on the 9th (normal limits 7th - 11th). It is hoped to observe this shower at the Taurid meteor count on the 8th Nov, this will depend on the number of members we have attending on this meteor count.
3. The Bielids. Now virtually extinct, associated with Biela's Comet. In 1827 and 1885 this shower produced about 10,000 meteors an hour'. Maxima around Nov 14th.

Main Showers in November.

1. The Taurids reach maxima on Nov. 8th. Described as slow and brilliant, rich in fireballs. A double radiant which rises about 1800hrs U.T. Z.H.R. =12. A photographic section is hoped to operate at this meteor count. No Moonlight interfering this year, Normal limits Oct 20th to Nov 30th.
2. The Leonids, described as very fast with persistent trains. This shower gave storm displays in 1966 but now it's strength seems to be increasing again after becoming very weak with a Z.H.R. of about 35. Radiant rises 0100 hrs U.T. Normal Limits Nov. 15th - 19th.
3. There will be a sporadic meteor count held on Saturday 29th November.

The last three above, we will hold a meteor count for starting at 9p.m. on Foxhall Stadium. The three dates to remember are:-

November	8th,	Taurids
"	15th	Leonids
"	29th	Sporadic.

COMETS:

We have just been advised by the B.A.A. of three comets which have just been discovered and are well within the reach of binoculars and small telescopes.

1. Comet MORI-SATO-FUJIKAWA 1975j

On the morning of October 5th, the above named observers independently discovered an 11th Mag. comet moving SSE in Hydra. All three observers described the comet as diffuse without condensation or tail. The comet will probably brighten and the following ephemeris should help with our observations.

Oct. 25th	08 34.3	hrs R.A.	a 10 59	Dec.	Mag 9.0
" 30th	08 36.9	R.A.	15 47	Dec.	
Nov 4th	08 39.1	R.A.	21 07	Dec.	" 8.6
" 9th	08 40.6	R.A.	-27 00	Dec	

2. Comet SUZUKI-SAIGUSA-MORI 1975k

Also on the morning of October 5th and again by three independent observers another comet was discovered. This one moving SE in Ursa Major and was also described as diffuse without condensation or tail, mag. 9.

The following orbit has been calculated.

Oct 31st	14hr 33.7	R.A.	-10 13	Dec	Mag 4.2
Nov 1st	15 24.5	"	25 55	"	
" 2nd	16 22.5	"	38 52	"	" 4.4
" 3rd	17 21.2	"	47 08	"	
" 4th	18 13.6	"	-51 35	"	" 5.2

Any further information received on these comets will be posted in the Observatory.

STAMPED ADDRESSED ENVELOPES.

Will those members who have not sent stamps to cover the increased postal charges please send stamps A.S.A.P. to Dr. Cheesman.

## Programme for November, 1975

Mondays from 7p.m. General Observations.

Directors Mr. N. Gage, [REDACTED], Felixstowe, 'Phone [REDACTED]  
Felixstowe [REDACTED]  
and Mr. S. Flory, [REDACTED], Ipswich, 'Phone [REDACTED]

3rd November

10th "

17th "

24th "

Tuesday 18th November

The Observatory will be open from 8p.m. to observe and photograph  
TOTAL ECLIPSE OF THE MOON

Wednesdays. 5th November, -Bon fire night. The Meteor Section Director is not interested in any information regarding Fire balls, meteors or U.F.C. sightings on this night.

WEDNESDAY. 12th November from 7p.m. ASTRONOMY FOR BEGINNERS.

The second in a series of meetings to help all people interested in astronomy. These meetings are open to anybody who wishes to come along. The meeting will take place irrespective of weather conditions. For these meetings wrap up warm and bring along binoculars and small telescopes.

Meet at the entrance to Foxhall Stadium at 7p.m.

Meetings organised by Mr. R.M. Cheesman.

WEDNESDAYS Solar, Lunar & Planetary Section

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

19th November,

26th "

Thursdays. Double Stars Section from 8p.m.

Director Mr. D. Bearcroft, [REDACTED], Ipswich, 'Phone [REDACTED]  
November 13th.

Fridays from 8.30p.m. Lunar & Planetary

Directors. Mr. J. Deans, [REDACTED], Capel St. Mary,

'Phone GT. WENHAM [REDACTED]

and Mr. K. Dye, [REDACTED], Ipswich, 'Phone [REDACTED]

7th November

21st "

Fridays from 8.30p.m. Nebular & Faint Objects Section

Directors. Mr. M. Stow, [REDACTED], Ipswich

and Mr. R. Hazelwood, [REDACTED], Ipswich 'Phone [REDACTED]

14th November,

28th "

SATURDAYS: METEOR SECTION

Director Mr. D. Barnard, [REDACTED], Ipswich 'Phone [REDACTED]

TAURID METEOR COUNT Saturday 8th November

LEONID METEOR COUNT Saturday 15th November

SPERADIC METEOR COUNT Saturday 29th November

Meet at the entrance to Foxhall Stadium at 9p.m. irrespective of weather conditions. Wrap up warm and bring a chair along.

Saturday 15th November.

Visit to Observatory by members of Nacton Church from 7.30p.m.

Organised by R.M. Cheesman

Thursday 27th November.

Visit to Observatory by Southwold Round Table from 7.30p.m.

ASTRONOMY IN ANCIENT & CLASSICAL TIMES.

Babylonian Astronomy continued:

The basis of predicting was by the time between each eclipse phenomena. For the eclipse to occur the moon has to be in a certain position in its orbit. A new series of eclipse starts at intervals of either 41 or 47 months. Each series consists of two or three total eclipses in the middle, with one or two partial eclipses either side. Each series is separated from one another by periods of two or three times six months minus one month without eclipses. The moon's orbital plane crosses the earth's equatorial plane at a slightly different place each month. After five series of eclipses, the moon crosses the equatorial plane at approximately the same point, The predictions for eclipses thus has a series of five, which is itself within a series of about 18 years.

The Babylonians definitely knew about this second series, but it has not been proved that the Assyrians knew of it. The Babylonians formulated a table from which eclipse predictions, both in the past and future, could be calculated. A fragmented copy of such a table exists in the British Museum. It was investigated by Stassmaier and Epping (who named it the Saros-Canon) and proved to be a table of eclipse predictions.

EGYPTIAN ASTRONOMY.

Very little is known about Egyptian astronomy. There is no trace of any development of astronomy as a science. The Egyptians, having sun-dials and water clocks did not need astronomy to help for time-keeping. When there was no need for application, no astronomy was perceived. The only significant astronomical sign used by the Egyptians was the rising of Sirius at a particular point each year, denoting the time of the Nile floods upon which Egypt depended.

ASTRONOMY IN CHINA.

Astronomy in China, like many other places, started from the need for measuring time. Astrology played a large part in Chinese astronomy. The beginning of the seasons was denoted by certain constellations being in a known position at sunset. Midsummer was when Antares was in the South at sunset. Winter began when the Bear's tail was pointing downwards.

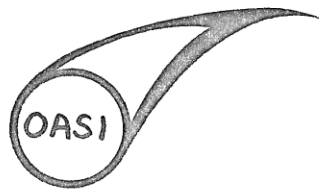
As more astrological than astronomical work was carried out, as with the Assyrians, the priests were the only people to study the sky in any detail. Omens in the sky were constantly looked for. The omens concerned only the Emperor and State. This resulted in the brighter stars and groupings of stars being given names connected with the Emperor and the State, such as the Palace, Emperor and names of the Royal Household.

Early Chinese astronomy showed very little real understanding of motions of the planets and Moon. The Chinese were some of the observers to compile a star chart. A few fragments of such a list exists today. Shih-Shen produced a list which contains descriptions of about 122 constellations and some 809 stars. This catalogue, when originally produced, would have been earlier than Hipparchus' catalogue.

At the time the Babylonians and Greeks were making progress in the understanding of the motions of the moon, sun and planets, The direction of Chinese astronomy then changed. This increase in knowledge has led to the belief that there were influences between the two cultures. A large amount of progress occurred during the first centuries A.D. China had originally been isolated from the Middle East and Mediterranean, but during the conquest of Central Asia, in the first century A.D. there were contacts between the Roman Empire, Iran and Greek science by the way of India.

By the middle of the first century A.D Chinese astronomers had worked out the length of the year to within 11 minutes, and the length of a synodic month to within 23 seconds. The prediction of eclipses was undertaken from a slightly different view point than was the Babylonians or Assyrians. The Chinese found that the sun passed through nodes in 135 synodic months, Thus, multiplying these two together, gives the period between eclipses, e.g.  $135/23 \times 29-43/81 = 173\frac{1}{2}$  days. This period is in fact only 35 minutes too long.

( to be continued next month)



ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

PRESENTS A

SPACE  
FILM SHOW.

AT THE

FRIENDS MEETING HOUSE

FONNEREAU ROAD

IPSWICH

ON

FRIDAY OCTOBER 31<sup>ST</sup>. 1975

AT 8 P.M.

ADMISSION FREE.

Secretary:-  
Mr. M. W. Stow,  
13, Ladywood Road,  
Ipswich.