

NOTTINGHAM ASTRONOMICAL SOCIETY.

No. 7 New Series

BULLETIN

OCTOBER, 1950

THE SKY FOR OCTOBER, 1950.

The Julian Date for October 0.0 is 243 3554.5. For other dates add the date.

THE SUN. A good series of two inch whole disks were received at the September meeting which indicate very little lowering of the spot activity. The difficult part of the year is now with us, and those members who can make solar observations during the short days can help materially to fill the gaps.

Solar rotation No.1298 began on September 18 and rotation no.1299 begins on October 16. Notes were given last month which enable rough estimates of solar longitude to be made.

THE MOON. The moon is full on October 25, and moonlight interference with the outdoor meetings will extend from October 20 to October 29. There is still a strong attachment to Harvest Moon conditions, and the moon continues to rise in the early evening sky for a week after full. There may be a chance to see the western side of the moon under setting sun conditions, a feat usually reserved for post-midnight observers, during the last few days of the month.

Lunation No.344 begins with the new moon of October 11.

There are three occultations of reasonably bright stars visible before midnight, computed for Nottingham by B. Emerson.

Oct 21	h Aquarii	(mag. 5.6)	Disappears at 11h. 33m. GMAT
28	chi Tauri	(5.5)	Reappears 8h. 01m.
31	47 Geminorum	(5.6)	Reappears 11h. 53m.

Occultation particulars are usually given for one phase only, either disappearance or reappearance, whichever occurs at the dark limb of the moon. By being observed clear of any bright part of the moon the observation can be made without obstruction from glare. Bright stars are frequently given with both disappearance and reappearance as they are bright enough to be followed in the glare.

There is a very fine occultation of most of the brighter stars of the Pleiades during the night of the 27th October, beginning about three hours after midnight and continuing over the next three hours, but the time is likely to deter anyone who is not a confirmed occultation enthusiast. Precise data will be supplied to anyone on application - the list is rather long.

THE PLANETS. Venus is getting near the sun and will soon be passing to the other side, apparently moving very slowly on the far side of her orbit, and becomes an evening star at the end of the year.

Jupiter is by far the brightest object in the evening sky at a moderate altitude towards the south, and will form the main attraction for open air meetings. Mr. W.E. Fox gave some very interesting news of present developments in the red spot area at the September meeting.

Uranus is again in the sky before midnight, nearly stationary all the month, about two degrees south of epsilon Geminorum (mag. 3.2) but the Handbook chart is needed to identify it with certainty as there are two or three stars very near of about the same brightness.

OPEN AIR MEETINGS. These will be resumed on October 2. Mr. Ashmore will take Mondays and Tuesdays, and the Director Wednesdays and Thursdays, except near full moon. Barton bus

Open Air Meetings contd.

every twenty minutes from Huntingdon Street 'bus station, book to Wilford Cross Roads (5d. return) and walk back about two hundred yards to the last house on the right before the railway viaduct, a detached house No. 281 Wilford Lane which can be finally identified by Mr. Lake Aske's name plate alongside the front door. Only good nights will be utilised except the third and fourth Thursdays when the Director will open up if the sky shows any promise at all. Sessions 7.30 to 9.0 p.m. Schedule of nights, Oct. 2, 3, 4, 5, 9, 10, 11, 12, 16, 17, 18, 19, 30, 31. If doubtful telephone the Director, Nottm. 66587 before setting out.

A.W.L.H.

TIME.

Of all the contributions to the service of mankind made by astronomy, that of the time service is, perhaps, the most practical.

THE TIME SIGNAL. Most of us check our watches by the 'six pips' of the Greenwich Time Signal, still so-called although it originates from Abinger near Dorking in Surrey where the Tien and Magnetic Departments of the Royal Observatory are established. The actual 'pips' are the sounds of a brief electrical contact at intervals of one second made by a slave clock controlled by a master clock which, in turn, is corrected from observations of the stars at the Royal Observatory.

The six 'pips' are produced every fifteen minutes and are available to the G.P.O. and B.B.C. throughout the day, although the latter broadcast only the 'pips' at selected times.

THE TWO TYPES OF TIME. All time is based on the duration of the Earth's rotation on its axis - one such complete rotation being one day which is, for convenience, sub-divided into twenty-four hours, each hour into sixty minutes and each minute into sixty seconds.

The year - the duration of one revolution of the Earth round the Sun, and the month - the duration of one revolution of the moon round the Earth - are not determined astronomically in the same way as the length of the day. Unfortunately, a difficulty arises in deciding what standard or 'guide-post' to use in determining exactly when the Earth has spun round once.

One method is to use the stars as fixed points and to say that one rotation of the Earth is completed when a point, say an observatory telescope, is directly in line with the same star a second time. This day is the Sidereal Day. Sidereal Time, determined like this from the stars, would be more convenient to astronomers but, alas, there is a snag!

In September, nothing would seem wrong because the sidereal time would allow the hours of daylight to occur during the accustomed period. However, as the months went by the ordinary inhabitants of this Earth would find things becoming awkward, until in March the Sun would be rising in the evening and setting in the morning according to sidereal time! To obviate this difficulty, civil time has to accord with the movements of the Earth with regard to the Sun instead of the stars. This time is called Solar Time but although we can check when the Sun is due south, or at its highest point above the horizon, and say "Well, now it is Noon. We will reckon as this day the twelve previous hours and the twelve following hours together" - it is not as easy as that!

Because of some important points to do with the shape of the Earth's orbit, the interval between two successive times

Time. contd.

when our astronomical telescope is in line with the Sun is NOT the same as when it is in line with a star.

The day reckoned by the Sun is about four minutes longer than the day reckoned by the stars. That is why a particular star, or group of stars, is in the same position in the sky four minutes earlier each day, twenty-eight minutes earlier each week, and two hours earlier each month.

Solar Time is not so easy to determine accurately because of the Sun's large disc, glare and, above all, its irregular movements. The Sun appears to move a little slower in January than in July. Because of this and other effects, the length of a day reckoned by the Sun is not constant. Clocks and watches, although they may gain or lose when we don't want them to, cannot keep pace with such irregularity, so our Solar Time in civil life is determined from the average length of a solar day.

The point where the Sun should be each day, but isn't, is called the position of the Mean Sun, hence the term Greenwich Mean Time (GMT for short). Actually the real Sun (and time so reckoned from it is called Apparent Solar Time) only coincides with the mean sun position four times a year - on April 16, June 15, September 1 and December 25. On all dates it is anything up to fifteen minutes early or late in reaching its scheduled position.

The actual difference is the well known item called the "Equation of Time". Those of you with sundials must apply the equation of time to your sundial to find GMT!

Finally, astronomers don't actually determine Mean Time directly. They find the Sidereal Time from direct observation of the stars and then, converting it into Mean Time, correct the Mean Time clock on which the Time Signal ultimately depends.

British Summer Time is, of course, merely the purely artificial time of GMT plus one hour.

Just one point, GMT in astronomy is reckoned from 0 hours through to twenty-four hours (midnight to midnight) but up to 1925 0 hours was twelve noon of the civil day and twenty-four hours was twelve noon of the following day, so be careful in looking up old records.

Universal Time (U.T.) is now the better term to use since it is always considered to have begun at midnight.

JUPITER 1950.

The Great Red Spot (now quite white) will be central at the following times during October:-

Oct. 4 7.10 GMAT	Oct. 11 8. 0 GMAT	Oct. 18 8.50 GMAT	Oct. 25 9.30 GMAT
6 8.50 "	13 9.30 "	21 6.10 "	28 7. 0 "
9 6.20 "	16 7. 5 "	23 7.55 "	30 8.25 "

As this interesting object is liable to drift in longitude, it is recommended that observation should begin before the times given.

If observers can give an eye estimate of the times when the preceding and the following ends are on the central meridian, they will be performing an observation of the greatest value in planetary observation.

W.E. FOX

THE AURORA OF AUGUST 19TH 1950.

This display was well seen by the writer while journeying from Nottingham to Newark. It was visible immediately after darkness and was observed until it ended at about 12 hrs 45 mins. GMT.

A complete arch stretching from the N.W. to N.E. was seen and this was estimated to reach about 25° above the Northern horizon, the most active region being 5° E of North from where many streamers radiated.

W.E. FOX

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