Memoranda for Observers.

Standard Time of India is adopted in these Memoranda.

For the month of July 1914.

Sidereal time at 8 p.m.

		H.	M.	S.
July	*1st*	14	35	11
,,	*8th*	15	2	47
,,	*15th*	15	30	23
,,	*22nd*	15	57	59
,,	*29th*	16	25	34

From this table the constellations visible during the evenings in July can be ascertained by a reference to a Star chart, as the above hours of sidereal time represent the hours of Right Ascension on the meridian.

Phases of the Moon.

		H.M.
July 7th	Full Moon	7 30 P.M.
,, *15th*	Last Quarter	1 2 ,,
,, *23rd*	New Moon	8 8 A.M.
,, *30th*	First Quarter	5 21 ,,

Meteors.

	Radiant R. A.	Radiant Dec.	Character.
May—June—July	252°	— 21°	Slow ; trains.
June—July—Aug.	302°	+ 23°	Swift.
July 4th—14th ...	284°	— 13°	Very slow.
8th—20th ...	317°	+ 31°	Swift ; white.
July—August ...	279°	+ 57°	Slow ; short.
,, ,, ...	305°	— 12°	Slow ; long.
July 23rd–Aug. 16th	48°	+ 43°	Swift, streaks.

The Planets.

Mercury—Is an evening Star until the 16th when he will be in inferior conjunction with the Sun, and will then become a morning Star until the 30th of August. He will be visible for the first few days in the month when setting about an hour after the Sun.

Venus—Is an evening Star setting about two and a half hours after the Sun throughout the month.

Mars—Is also an evening Star. At the beginning of the month he will be close to Regulus in Leo, setting nearly four hours after the Sun. His position on the 15th will be R.A. 10·52, Dec. 8° 7′ North.

Jupiter—A morning Star, rises in Capricornus at about 9 p.m. at the beginning of the month. Position on the 15th R.A. 21·32, Dec. 15° 32′ South.

Saturn—Also a morning Star, rises in Taurus about an hour before the Sun on the 1st and nearly three hours before at the end of the month. Position on the 15th R.A. 5·41, Dec. 22° 14′ North, almost due north of Betelgeux.

Uranus—In Capricornus. Position on the 15th R.A. 20·52, Dec. 18° 17′ South.

Neptune—Is in conjunction with the Sun in Cancer on the 21st. Position on the 15th R. A. 7·59, Dec. 20° 15′ North.

For the month of August 1914.

Sidereal time at 8 p.m.

		H.	M.	S.
August	*1st*	16	37	24
,,	*8th*	17	5	0
,,	*15th*	17	32	36
,,	*22nd*	18	0	12
,,	*29th*	18	27	48

From this table the constellations visible during the evenings in August can be ascertained by a reference to a Star chart, as the above hours of sidereal time represent the hours of Right Ascension on the meridian.

Phases of the Moon.

August 6th	Full Moon ...	... 6 10 A.M
,, *14th*	Last Quarter	... 6 26 ,,
,, *21st*	New Moon ...	... 5 56 P.M.
,, *28th*	First Quarter	... 10 22 A.M.

Meteors.

	Radiant. R. A.	Dec.	Character.
June —July—August	... 302°	+ 23°	Swift.
July—August	... 279°	+ 57°	Slow ; short.
,,	... 305°	— 12°	Slow ; long.
July 25th—August 16th	... 48°	+ 43°	Swift ; streaks.
July 23rd—August 25th, 31*st*	339°	— 11°	Slow ; long ; brilliant.
August 10th—12th	... 45°	+ 57°	Swift ; streaks ; brilliant.
,, *10th—15th*	... 290°	+ 53°	Swift ; bright.
,, *21st—25th*	... 291°	+ 60°	Slow ; bright.
August—September	... 346°	+ 1°	Slow.

The Planets.

Mercury—Is a morning Star until the 30th when he will be in superior conjunction with the Sun, and then becomes an evening Star. He will be at greatest elongation West on the 5th rising in Gemini about eight degrees due South of Pollux an hour and ten minutes before the Sun, and will be visible during the first half of the month.

Venus—Is an evening Star increasing her altitude above the Sun, and setting nearly three hours after the Sun throughout the month.

Mars—Is also an evening Star in conjunction with Venus on the 6th when the two planets will be within ten minutes of arc of each other. Mars sets nearly three hours after the Sun at the beginning of the month, and two after at its close. Position on the 15th R.A. 12·2, Dec. 0° 16′ North, in Virgo.

Jupiter—is a morning Star until the 11th when he will be in opposition to the Sun, and on the meridian at midnight ; and

then becomes an evening Star for the rest of the year. Position on the 15th R.A. 21·32, Dec. 15° 32′ South.

Saturn—is a morning Star rising in Taurus about three hours before the Sun on the 1st and about four and a half hours before on the 31st. Position on the 15th R.A. 5·56, Dec. 22° 19′ North.

Uranus—In Capricornus will be in opposition to the Sun on the 3rd. Position on the 15th R.A. 20·47, Dec. 18° 37′ South.

Neptune—In Cancer. Position on the 15th R.A. 8·3, Dec. 20° 1′ North.

The Sun.

There will be a total eclipse of the Sun on the 21st, but it will be only partial in India, and very little will be seen of it in this country, as it will only commence about forty minutes before sunset.

For the month of September 1914.

Sidereal time at 8 p. m.

	H.	N.	S.
September 1st	18	39	37
,, *8th*	19	7	13
,, *15th*	19	34	49
,, *22nd*	20	2	25
,, *29th*	20	30	1

From this table the constellations visible during the evenings in September can be ascertained by a reference to a Star chart, as the above hours of sidereal time represent the hours of Right Ascension on the meridian.

Phases of the Moon.

September 4th Full Moon	7 31	P.M.
,, *12th* Last Quarter	11 18	,,
,, *19th* New Moon	3 3	A.M.
,, *27th* First Quarter ..	5 33	P.M.

There will be a partial eclipse of the moon on the 4th, commencing at 4-49 P.M., middle contract being at 6-28 P.M. and final contract at 8-8 P.M.

Meteors.

		Radiant. R. A.	Dec.	Character.
August—September	...	346°	+ 1°	Slow.
September 3rd—21st	...	60°	+49°	
,, *6th—15th*	...	62°	+36°	Swift; streaks.
,, *6th—17th*	...	106°	+52°	,,
,, *12th—22nd*	...	74°	+41°	
,, *27th*	...	4°	+28°	Slow.

The Planets.

Mercury—Is an evening Star throughout the month, setting very soon after the Sun on the 1st and an hour and a quarter after on the 30th.

Venus—Also is an evening Star, setting nearly three hours after the Sun all through the month. She will be at greatest elongation East on the 18th, being then more than 46 degrees above the Sun.

Mars—Also is an evening Star, but approaching conjunction with the Sun, which will occur in December, his altitude decreases. He sets two hours after the Sun on the 1st and about an hour and a half after on the 30th. Position on the 15th R.A. 13·16, December 7° 52′ South.

Jupiter—Also is an evening Star, still in Capricornus. Position on the 15th R.A. 21·4, Dec. 17° 47′ South.

Saturn—Is a morning Star, rising in Gemini four and a half hours before the Sun on the 1st and more than six hours before on the 30th. Position on the 15th. R. A. 6·6, Dec. 22° 17′ North.

Uranus—In Capricornus. Position on the 15th R.A. 20·42, Dec. 18° 52′ South.

Neptune—In Cancer. Position on the 15th R.A. 8·7, Dec. 19° 49′ North.

For the month of October 1914.

Sidereal time at 8 p.m.

		H.	M.	S.
October	*1st*	20	37	54
,,	*8th*	21	5	30
,,	*15th*	21	33	6
,,	*22nd*	22	0	41
,,	*29th*	22	28	17

From this table the constellations visible during the evenings in October can be ascertained by a reference to a Star chart, as the above hours of sidereal time represent the hours of Right Ascension on the meridian.

Phases of the Moon.

October	*4th*	Full Moon	11	29	A.M.
,,	*12th*	Last Quarter	3	3	P.M.
,,	*19th*	New Moon	0	3	P.M.
,,	*26th*	First Quarter	4	14	A.M.

Meteors.

		Radiant. R.A.	Dec.	Character.
October	*2nd* ...	230°	+ 52°	Slow ; bright.
,,	*8th*—*16th* ...	44°	+ 58°	Small ; short.
,,	*15th*—*24th* ...	92°	+ 15°	Swift ; streaks ; brilliant.
,,	*22nd*—*27th* ...	100°	+ 13°	Swift ; streaks.
,,	*29th*—*Nov. 1st* ...	43°	+ 22°	Slow ; bright.

The Planets.

Mercury—Is an evening Star throughout the month and attains his maximum altitude above the Sun on the 15th, when he is at greatest elongation East 24° 52′. Setting about an hour after the Sun, he will be visible all through the month.

Venus—Also is an evening Star, and will be at her greatest brilliancy on the 23rd. She sets about three hours after the

Sun on the 1st and a little more than two hours after on the 31st.

Mars—Also is an evening Star, setting an hour and a half after the Sun at the beginning of the month, and an hour after at the close. He will be close to Mercury throughout the month. Position on the 15th R.A. 14·34, Dec. 15° 13′ South, in Libra.

Jupiter—Also is an evening Star, still in Capricornus. Position on the 15th R.A. 21·1, Dec. 18° 0′ South.

Saturn—A morning Star, rises in Gemini from six and a half hours to eight hours before the Sun as the month advances. position on the 15th R.A. 6·10, Dec. 22° 16′ North.

Uranus—In Capricornus. Position on the 15th R.A. 20·41, Dec. 18° 59′ South.

Neptune—In Cancer. Position on the 15th R.A. 8·9, Dec. 19° 42′ North.

For the month of November 1914.

Sidereal time at 8 p.m.

		H.	M.	S.
November 1st	... ...	22	40	7
,, *8th*	... ...	23	7	43
,, *15th*	... ...	23	35	19
,, *22nd*	... ...	0	2	55
,, *29th*	... ...	0	30	30

From this table the constellations visible during the evenings in November can be ascertained by a reference to a Star chart, as the above hours of sidereal time represent the hours of Right Ascension on the meridian.

Phases of the Moon.

November 2nd	Full Moon.	... ...	5 19	A.M.
,, *11th*	Last Quarter	... ...	5 7	,,
,, *17th*	New Moon	... ...	9 32	P.M.
,, *25th*	First Quarter	... ...	7 9	,,

Meteors.

	Radiant. R.A.	Dec.	Character.
October 29th—November 1st	43°	+ 22°	Slow; bright.
November 13th—16th ...	151°	+ 22°	Swift; streaks; brilliant.
,, *13th—28th* ...	154°	+ 40°	Swift; Streaks.
,, *17th—23rd* ...	25°	+ 44°	Very slow; trains; brilliant.
,, *19th—23rd* ...	63°	+ 22°	Slow; bright.
,, *23rd—30th* ...	189°	+ 73°	Rather swift.

The Planets.

Mercury—Is an evening Star until the 7th when he will be in inferior conjunction with the Sun, and will transit the Sun's disc. The internal contact at ingress will occur at 3-30 P.M., and the planet will be on the meridian of the Sun at 5-33 P.M. The internal contact at egress will take place after sunset, at 7-37 P.M. The last transit happened in May 1907, and the phenomenon will not occur again until May 1924.

Venus—Is an evening Star until the 27th when she will be in inferior conjunction with the Sun. She sets about two hours after the Sun at the beginning of the month, and with the Sun on the 27th.

Mars—Also is an evening Star, but his altitude diminishes daily as conjunction with the Sun which occurs on December 24th draws nearer. He sets an hour after the Sun on the 1st and twenty-seven minutes after on the 30th. Position on the 15th R.A. 16·3, Dec. 9° 21′ South, in Scorpio.

Jupiter—Also is an evening Star in Capricornus. He will be in quadrature on the 7th. Position on the 15th R.A. 21·9, Dec. 17° 20′ South.

Saturn—In Gemini, is a morning Star rising soon after 9 P.M. at the middle of the month. Position on the 15th R.A. 6·6, Dec. 22° 16′ North. He has been retrograding since October 15th.

Uranus—In Capricornus. Position on the 15th R.A. 20·42, Dec. 18° 53′ South.

Neptune—In Cancer. Position on the 15th R.A. 8·10, Dec. 19° 42′ North.