

Crewkerne & District Astronomical Society

Sky Notes December 2017

All timings are Universal Time (G.M.T.), U.K. local time is now the same.

Winter Solstice 21st. December The Sun will be at its lowest Southern point below the Ecliptic, at Declination $-23^{\circ} 26'$. There will be 8 hours of daylight and 16 hours of darkness.

Moon's Phases

Full	December	3d. 15h. 47m.
Last Quarter	"	10d. 7h. 10m.
New	"	18d. 6h. 30m.
First Quarter	"	26d. 9h. 20m.
Moon at perigee (nearest to Earth)	Dec. 4d. 08h.	Diam. $33' 25''$.
Moon at apogee (furthest from Earth)	Dec. 19d. 01h.	" $29' 53''$.

The Planets

Mercury ; With inferior solar conjunction on the 13th, it starts the month as an early evening object. On the 1st. setting at 16.50, an hour after sunset, and on the 12th. at sunset (15.50). On the 13th. it rises at dawn (08.00) and by the 31st. at 06.20, 1½ hours before the Sun. It starts the month from a stationary point just in western Sagittarius. Travelling W.N.W. it enters Ophiuchus around the 6th. and reaches another stationary point on the 23rd., a total movement of some 15° . It then goes back E.S.E. 4° to the end of the month.

Mid month Mercury will be mag. 2.0, diam. 9.5", elongation 3° E. and rising at 07.30, ½ hour before dawn.

Venus : Continues to be a late morning object. On the 1st. it rises at 07.00, 50 mins. before dawn, and by the 31st. at dawn, 08.10. It begins the month in eastern Libra, close to the border with Scorpius. Moving E. it enters it around the 2nd., and crosses it to enter Ophiuchus around the 10th. It then crosses that and enters Sagittarius around the 23rd. It ends the month 2° N. of the top of the 'Teapot's' lid, 3rd. mag. star Lambda Sag. A total travel of 40° .

Mid month it will be mag. -3.9, 9.9" diam., elong. 6° W. and rising at 07.10, an hour before dawn.

Mars : Also a late morning object. At the start of the month it rises at 03.40, 4 hours before dawn. By the end it rises at 03.30, 4½ hours before the Sun. On the 1st. it lies in mid Virgo, 2° N.E. of Spica, 1st. mag. Alpha Vir. Moving S.E. it crosses Virgo to enter Libra around the 23rd., and it ends the month 1° N.W. of 2nd. mag. Alpha Lib. A total travel of 19° .

Mid month Mars will be mag. +1.6, 4.4" diam., elong. 50° W. and rising at 03.35, 4½ hours before dawn.

Jupiter : A late morning object. On the 1st. rises at 05.10, 2½ hours before dawn, and on the 31st. at 03.40, 4½ hours before the Sun. It starts the month just inside Libra. Moving S.E. it ends the month 2° E. of Alpha Lib. A total distance of 6° .

Mid month Jupiter will be mag. -1.7, 32" diam., elong. 39° W. and rising at 04.30, 3½ hours before dawn.

Saturn : With solar conjunction coming on Dec. 21st. it is not well placed this month. On the 1st. it sets at 17.00, an hour & 10 mins. after sunset, and on the 18th. at sunset, 19.10. On the 31st. it rises at 07.40, ½ an hour before dawn. Continuing to lie in the far West of Sagittarius, it travels 4° E. during the month, ending it just S. of M21, the 5.9 mag. open star cluster.

Mid month mag. 0.5, disc diam. 15.1", rings 34.2, elong. 7° E. and setting at 16.10, 20 minutes after sunset.

Titan, mag. 8.3, & max. elong. 160". Greatest E. elong. on Dec. 5 & 21. Greatest W. elong. on Dec. 13 & 29.

Uranus : An evening and early morning object. At the start of the month it sets at 03.40 4 hours before dawn. By the end it sets at 01.40. Remaining in S.E. Pisces, it moves ½° S.W. to a stationary point, and then turns back N.E. a similar distance. At the end it will lie $3\frac{1}{2}^{\circ}$ W. of the 4.3 mag. star Omicron (110) Psc.

Mid month it will be mag. 5.7, 3.7" diam., elong. 122° E. and setting at 02.40.

Neptune : An evening object. At the start of the month it sets at 23.30, and by the end at 21.30, 5½ hours after sunset. Remaining in N.E. Aquarius, near the border with Pisces, it moves ½° N.E. during the month. It ends it ½° S.E. of mag. 3.7 star Lambda (73) Aqu.

Mid month it will be mag. +7.9, 2.3" diam., elong. 78° E. and setting at 22.30.

Meteors

Geminids : December 8 - 17. Maximum on Dec. 14th. 02h. One of the major showers, with a Zenith Hourly Rate of 100+. Believed to originate from minor planet 3200 Phaethon. Radiant at R.A. 07h. 33m., Dec. $+32^{\circ}$. Near Castor, mag. 1.6 Alpha Geminorum. Culmination at 02.00, altitude 72° . Moon very favourable, 4 days after L.Q., rising at 04.06 on the 15th.

Ursids : Dec. 17 - 25. Maximum on Dec. 23rd. Produced from dust trail left by Comet Tuttle. Z.H.R. 10. Radiant at R.A. 14h.28m., Dec., $+78^{\circ}$., around 5° N. of 2nd. mag. Delta Ursa Minoris. Circumpolar. Moon quite favourable, 5 days old, setting at 21.11.

Variable Stars

Algol (Beta Persei) : Known to the early Arabian astronomers as the 'Winking Demon', it is not a true variable star but an eclipsing binary where a bright star is partially eclipsed by a fainter companion every 69 hours. Normally at magnitude 2.1, over a period of 5 hours it drops to 3.4, the rises over 5 hours back to 2.1. Both stars are roughly the same size - about 3 or 4 times our Sun, and are separated by $57''$. However the companion is much cooler and fainter at mag. 12.7. They lie 93 Light Years from us. Their orbital plane is nearly coincidental to our line of sight, so they partially eclipse each other. However, when the brighter member passes the fainter there is only a slight drop in the total brightness - less than 0.05 mag., hardly detectable. The reason for the variation was established by the British astronomer John Goodricke in 1782. In more recent times, two or more members of the group have been discovered spectroscopically. They are reckoned to be mag. 10.5 & 12.5. They are not in our line of sight to their 'big brother'. From our latitude Algol is circumpolar, it never sets. A star is circumpolar when its angular distance from the pole is less than the latitude of the observing site. With a declination of $40^{\circ} 57'$ it lies $49^{\circ} 53'$ from the pole, whilst our latitude is $51^{\circ} 52'$. A good companion star to Algol is Rho (25) Persei which lies 2° S. of it at mag. 3.5. (see the current chart). At this time of the year Algol is nearly overhead late in the evening. Algol R.A. 03h.08m., Dec. $+40^{\circ} 57' 20''$. Current times of minima observable from our area. Nov. 11, 01.1h., Nov. 13, 22.0h., Dec. 1, 02.8h., Dec. 3, 23.7h., Dec. 6, 20.5h., Jan. 13, 0.3h., Jan. 15, 23.8h., Jan. 18, 20.6h., Feb. 5, 1.5h., Feb. 7, 22.3h., Feb. 25, 03.2h., Feb. 28, 0.1h., March 2, 20.9h., March 20, 0.8h.

Arthur Davis Oct. 2017

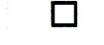
MegaStar

N
E W

Galaxy



Bright Neb



Glxy Cl



Dark Neb



Globular



Asterism



Open Cl



Unknown



Planetary



Quasar



Clust+Neb



Dbl Star



28° 19.7'
x
26° 3.7'

03h 22m 54.5s
+44° 55' 40"

Nov 12, 2017
19:42 LT
19:42 UT
N 51° 0' 0.0"
W 3° 0' 0.0"
Alt: 46.9°
Azim: 71.2°
Trans: 00:10
Rise: ---
Set: ---

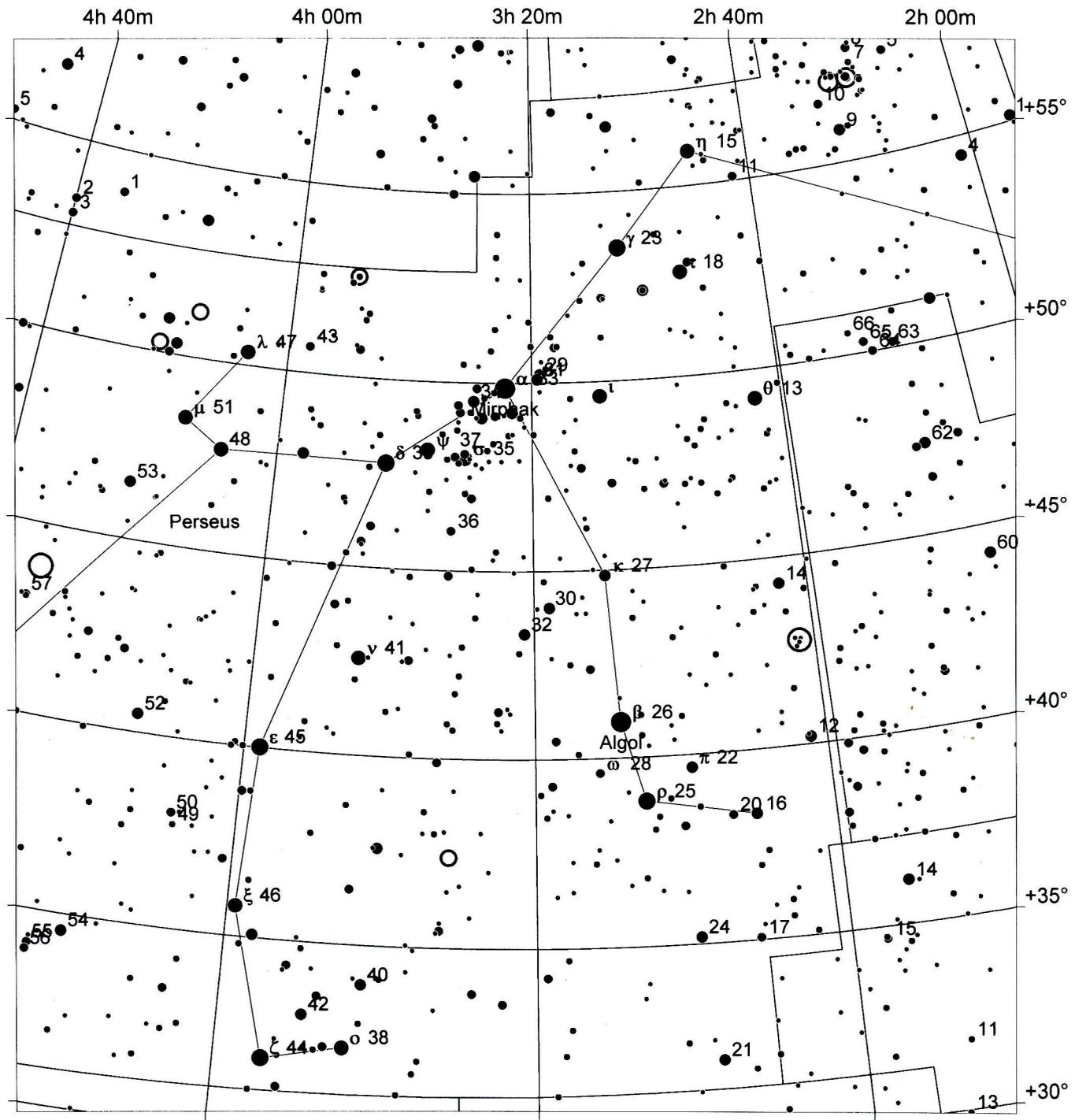
Per

Uranometria 63

Comet



Asteroid



Algol Beta (26) Persei. etc.