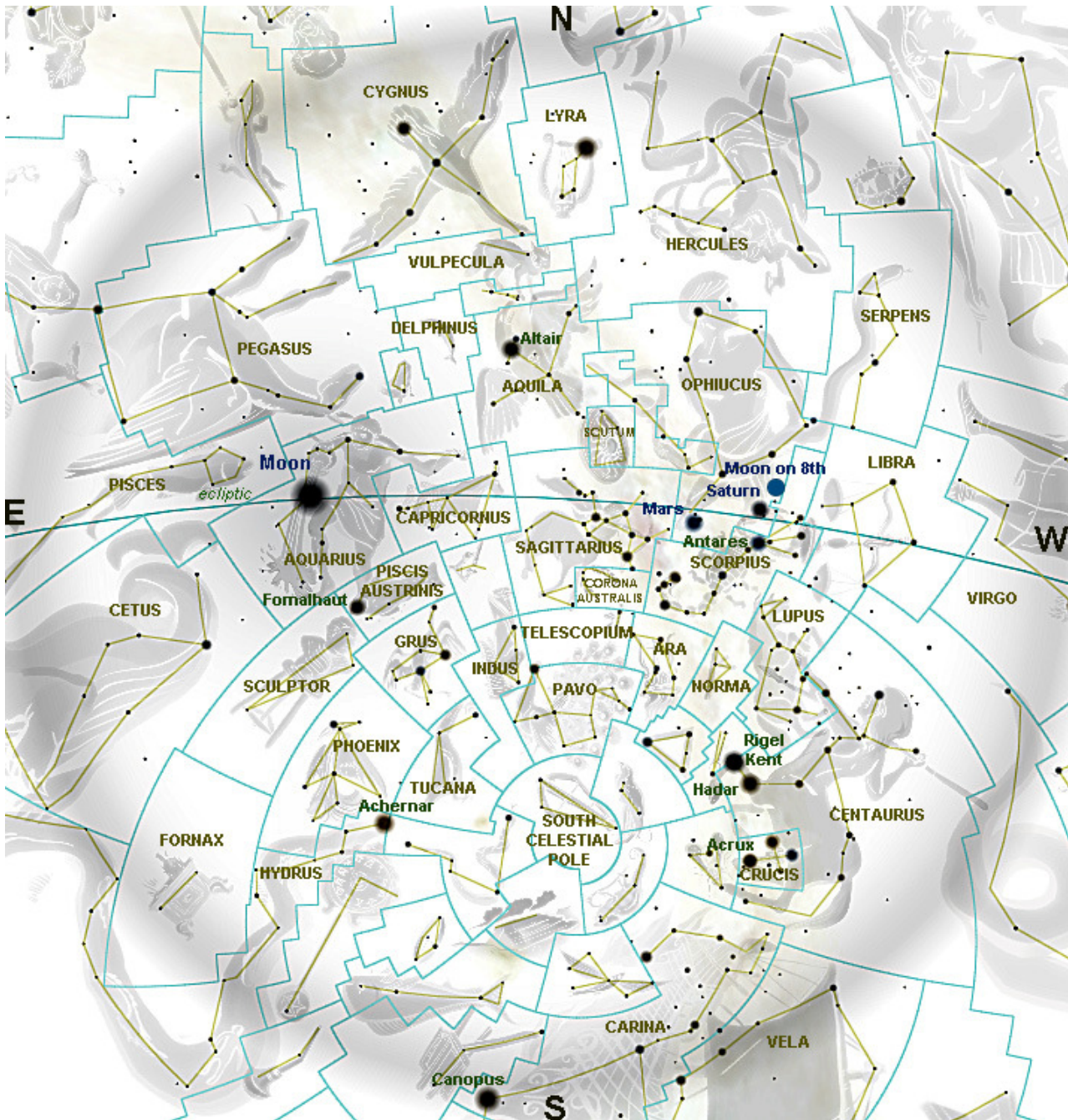




1. SKY MAPS

EVENING SKY MID SEPTEMBER at 21^h00



PLEASE NOTE: All events predicted below are as observed from **Hermanus, Western Cape, South Africa**

2. THE SOLAR SYSTEM

<i>Sun & Planets</i>	<i>SEPTEMBER 2016</i>		<i>1st</i>	<i>30th</i>
Sun Constellation Length of day	Leo to Virgo 11h 24m to 12h 25m	Rises:	07h02	06h21
		Transits:	12h43	12h33
		Sets:	18h25	18h46
Mercury ϕ phase Constellation Magnitude	10" to 7" 21% to 57% Virgo to Leo +1.4 to -0.6	Rises:	07h37	06h42
		Transits:	13h48	11h31
		Sets:	19h59	17h19
Venus ϕ phase Constellation Magnitude	11" to 12" 92% to 86% Virgo to Libra -3.9	Rises:	08h09	07h45
		Transits:	14h12	14h29
		Sets:	20h16	21h13
Mars ϕ phase Constellation Magnitude	10" to 9" 85% Scorpius to Sagittarius -0.3 to +0.1	Rises:	11h31	10h54
		Transits:	18h49	18h14
		Sets:	02h08	01h35
Jupiter ϕ Constellation Magnitude	31" Virgo -1.7	Rises:	07h57	06h19
		Transits:	13h55	12h23
		Sets:	19h52	18h28
Saturn Diameter Constellation Magnitude	17" to 16" Ophiuchus +0.5 to +0.6	Rises:	11h32	09h43
		Transits:	18h33	16h45
		Sets:	01h38	23h47
Uranus ϕ Constellation Magnitude	4" Pisces +5.7	Rises:	21h49	19h51
		Transits:	03h31	01h33
		Sets:	09h09	07h12
Neptune ϕ Constellation Magnitude	2" Aquarius +7.8	Rises:	18h22	06h25
		Transits:	00h51	22h50
		Sets:	07h16	05h20
Pluto Constellation Magnitude	Sagittarius + 14.2	Rises:	13h59	12h04
		Transits:	21h03	19h08
		Sets:	04h11	02h16

'Beginner's guide' to the table above.

Phase: In a telescope, the inner planets (Mercury, Venus and Mars) appear to us in phases, depending on the angle of the Sun's illumination, as does the Moon. The **angular diameter** (ϕ) is given in arc seconds ("). This is the apparent size of the object as we see it from Earth. To illustrate this point, consider the average binoculars through which we see about 7° of sky. Therefore, for example, Mars at 19" on 1st September would cover approximately 1/1300th of the field of view.

Magnitude: we are accustomed to hearing stars described in terms of 'magnitude', for example **Antares** (in Scorpius) at +1.05 and the planet **Jupiter**, at magnitude -1.9. The latter is considerably brighter than Antares as the scale is 'inverse'; *the brighter the object, the lower the number*. A 'good' human eye on a clear night can see down to a magnitude of about +6.

Transit: When an object crosses the local **meridian** it is said to **'transit'**. The local meridian is an imaginary line from the horizon directly north passing overhead to the horizon directly south.

PLANET VISIBILITY

- Mercury** Initially low in the west after sunset becoming low in the east before sunrise
 - Venus** The "Evening Star", low in the west after sunset
 - Mars** Visible in the evening sky
 - Jupiter** Initially low in the west after sunset but later moving too close to the sun to be observed
 - Saturn** Visible in the evening sky
 - Uranus** Visible throughout the night
 - Neptune** Visible throughout the night
 - Pluto** Visible in the evening sky
- Mars has made good his escape, having cleared the Scorpion's claws, and is safely riding away into the sunset.

THE MOON.

From the *Sky Guide Africa South*:

Eratosthenes

Type: crater with very high walls, rising to some 3.6 km, with a central mountain and several summits. **Diameter:** 60 km.

Location: The southern "shore" of Mare Imbrium marking the western end of the Apennine Mountains. **Best seen:** one day after first quarter and at last quarter.

Notes: Named for the 3rd century BCE Greek mathematician and philosopher, Eratosthenes, the first scholar to calculate the circumference of the earth.

Eclipses (visible from South Africa)

SOLAR ECLIPSE (annular)

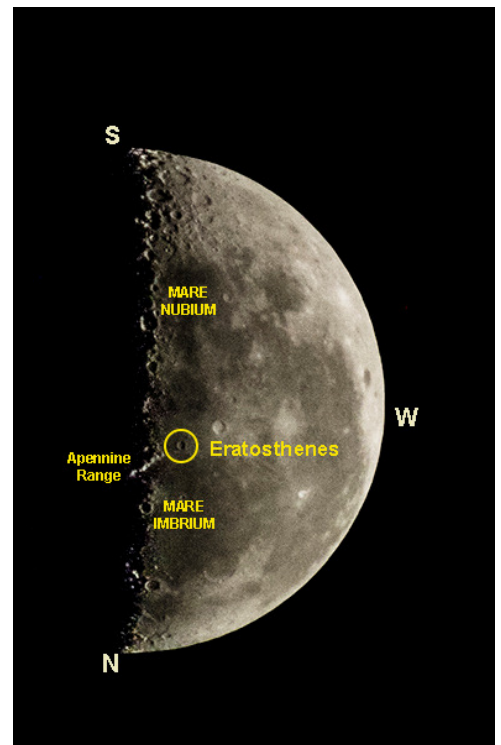
Date: **1st September**

	<i>First contact</i>	<i>Maximum</i>	<i>Last contact</i>	<i>% of solar disc obscured</i>
Cape Town	09h43	10h48	11h58	26 %
Johannesburg	09h31	11h02	12h38	50 %

LUNAR ECLIPSE (penumbral)

Date: **16th September**

Moon enters penumbra	18h 54m
Maximum	20h 54m
Moon leaves penumbra	22h 54m



METEOR SHOWERS

No meteor showers are visible during September 2016.

3. SEPTEMBER HIGHLIGHTS FROM THE SKY GUIDE

<i>Date</i>	<i>Time</i>	<i>Item</i>
1	11h03	New Moon. Annular solar eclipse
2		Moon to Mercury 5.7° south
2		Jupiter to Mercury 5.4° south
2	17h16	Neptune at opposition
2		Ceres stationary
2 to 4		MSP Star Party
3	12h33	Moon to Venus 12.7° south
3		Moon to Jupiter 0.3° south (occultation not visible in South Africa)
5		Moon to Spica 5.6° south
5	02h03	Saturn to Antares 6.1° north
5		Comet 226P/Pigott-LINNEAR-Kowalski at perihelion
6	20h44	Moon at apogee (405 100 km)
8	23h23	Moon to Saturn 4.2° south
9	13h49	Moon first quarter
9		Moon to Saturn 3.8° south
11	00h05	Moon furthest south (-18.5°)
11		Moon to Pluto 3.2° south
13	01h38	Mercury at inferior conjunction
15		Moon to Neptune 1.1° south (occultation)
16	20h56	Full Moon
16		Penumbral Lunar eclipse
18	19h00	Moon at perigee (361 900 km)
18		Moon to Uranus 2.8° north
18	17h12	Venus to Spica 2.4° north
21		Mercury stationary
22	16h21	Equinox
22	00h13	Moon to Aldebaran 0.2° south
23	11h56	Moon last quarter
23	18h44	Moon furthest north (+18.5°)
26	08h19	Jupiter at conjunction
26		Pluto stationary
28		Moon to Regulus 1.8° north
28	20h59	Mercury at greatest elongation (17.9° W)

4. STARGAZING



Initiated by Karin de Bruin, this is intended not only to offer the opportunity of a group stargazing evening but to guide interested members in the use of binoculars, telescopes and observation records.

The next stargazing evening is scheduled for Friday 30th September, weather dependent of course.

The venue: NGK, Onrusrivier

Time: 19h00 (7 pm)

Please join us for another fun-filled and instructive evening. More details will be circulated during the month.



Forthcoming attractions

Karin's "100 Stars Club" is set to start soon.

*** More information coming up during the month! ***

BEST OBSERVATION DAYS

Unless specifically targeting the moon, my suggestion of the most convenient dates to plan evening stargazing for September:

1st to 4th September (moonset 21h23) and

19th (moonrise 21h48) to 30th September

5. DEEP SKY

The SGAS Deep-sky highlight for the month is the Cartwheel Globular cluster.



From Wikipedia:

NGC 6752 is a [globular cluster](#) in the [constellation Pavo](#). It is the third brightest in the sky after [Omega Centauri](#) and [47 Tucanae](#).

NGC 6752 was first identified by one [James Dunlop](#) of Parramatta on 30 June 1826, who described it as an irregular bright nebula which could be resolved into a cluster of many stars, highly compressed at the centre. This corresponds with a core region densely populated with stars around 1.3 light years in diameter, which indicates it has undergone [core collapse](#). The cluster lies around 13,000 light years distant and is one of the closer globular clusters to Earth. It also lies 17,000 light years away from the galactic centre. It belongs to [Shapley–Sawyer Concentration Class](#) VI, namely of intermediate density, and has been calculated to be 11.78 [billion years](#) old. There are a large number of binary stars in the system, as well as [blue stragglers](#), which are likely to have been formed by collisions and mergers of smaller stars. The NASA website "Astronomy Picture of the Day" notes that it holds over 100 thousand stars in a sphere about 100 light-years in diameter.^[8]

The apparent magnitude of the cluster is 5.4, so it can be seen with the unaided eye. However, this depends on good viewing conditions with a minimum of light pollution. With binoculars it can be seen to cover an area three quarters the size of the full moon. It lies 1.5 degrees east of 5th magnitude [Omega Pavonis](#). The nearest bright star is [Peacock](#) which lies 3.25 degrees north and 9.25 degrees east.

Six X-ray sources have been identified in the cluster's core by the [Chandra X-Ray Observatory](#).

From Ian Ridpath's *"Star Tales"*

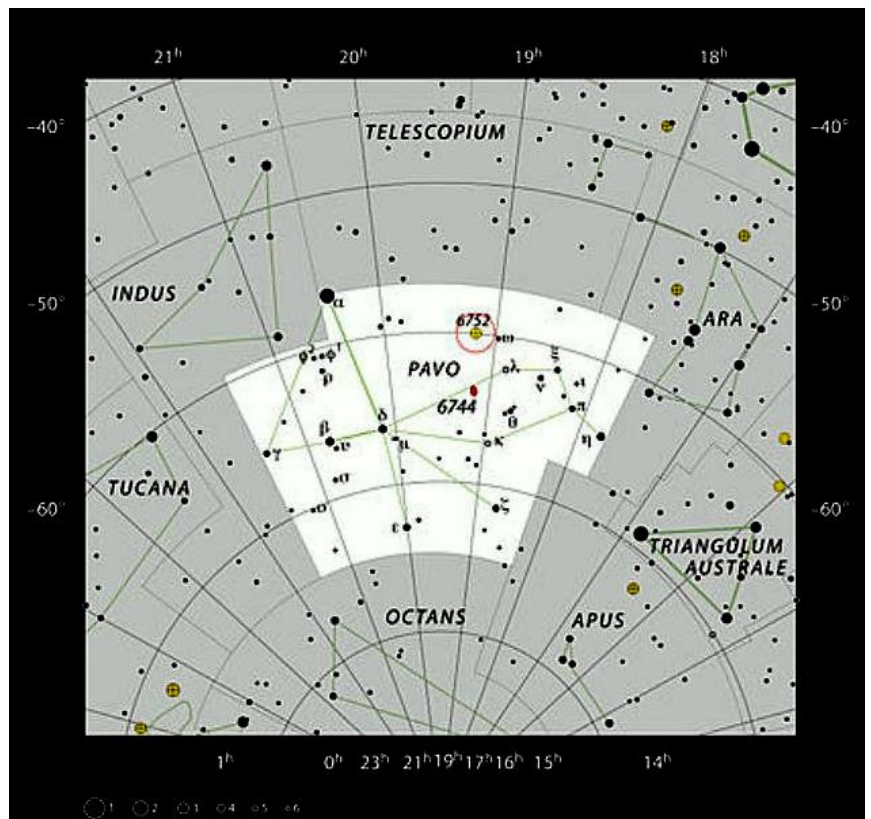
Genitive: Pavonis

Abbreviation: Pav

Size ranking: 44th

Origin: The 12 southern constellations of [Keyser and de Houtman](#)

The peacock is one of the 12 figures introduced into the southern skies at the end of the 16th century by the Dutch navigators Pieter Dirkszoon Keyser and Frederick de Houtman. Pavo probably represents not the common blue, or Indian, peacock commonly seen in parks but its larger, more colourful, and more aggressive cousin, the Java green peacock which Keyser and de Houtman would have encountered in the East Indies. Pavo was first depicted in 1598 on a globe by Petrus Plancius and [first appeared in print](#) in 1603 on the Uranometria atlas of Johann Bayer.



In mythology, the peacock was the sacred bird of Hera, who drove through the air in a chariot drawn by peacocks. How the peacock came to have eyes on its tail is the subject of a Greek myth that began one day when Zeus turned his illicit love Io into a white cow to disguise her from his wife, Hera, who nearly caught them together. Hera was suspicious and put the heifer under the guardianship of Argus, who tethered the animal to an olive tree. Argus was ideally suited to the task of watchman, since he had 100 eyes, of which only two were resting at a time while the others kept a look out. Wherever Argus stood, he could always keep several of his eyes on Io.

Zeus sent his son Hermes to release Io from her captivity. Hermes swooped down to Earth and spent the day with Argus, telling him stories and playing his reed pipes until, one by one, the eyes of Argus became sleepy and began to close. When Argus was finally asleep, Hermes lopped off his head and released the heifer. Hera placed the eyes of Argus on the tail of the peacock.

The constellation's brightest star, second-magnitude Alpha Pavonis, is called Peacock, a name given in or around 1937 by the Nautical Almanac Office for use in The Air Almanac.

© Ian Ridpath. All rights reserved

Please keep in touch...

Don't forget to have a look at our excellent website, edited by Derek Duckitt.

<http://www.hermanusastronomy.co.za/>

Also...

[ASSA Deep-Sky Section](#)

Whatsapp chat group: [074 100 7237]

[Official Big 5 of the African Sky web page](#)

[Official Big 5 Facebook group](#)

[ASSA Deep-Sky Section mailing list](#)

Contact ASSA

Get in touch with officers of the Society - we're real people with a passion for astronomy, [so contact us and let's talk!](#)

You can also find us on [Facebook](#), [Twitter](#), the [ASSA Info mailing list](#) and the [ASSA Discussion mailing list](#).

Grateful thanks to the following, without whom this publication just would not be the same:

ASSA
Auke Slotegraaf
Ian Ridpath
Johan Retief
Karin de Bruin
Sky Guide Africa South 2016
Stellarium

Compiled by Peter Harvey

e-mail: petermh@hermanus.co.za

Tel: 081 212 9481