

JUNE 1982

Astronomical

Society of

Frankston

J U N E M E E T I N G S

The ASF's monthly meeting will be held on June 23 (being the fourth Wednesday of the month) in Room 16 of the Chisholm Institute of Technology, McMahons Road, Frankston, commencing at 8 pm .

'INTRODUCTORY ASTRO-NAVIGATION' will be the topic of the main talk, to be presented by John George who is a lecturer in this subject .

If you have friends who are interested in sailing, why not invite them along to the meeting with you ?

The next Public Viewing Night is now scheduled for Friday June 25. A special feature will be instruction in observing Variable Stars.

C O S M O S

Astronomers should stay inside on Wednesday nights (except ASF meeting nights!) to see Carl Sagan's series which traces 15 billion years of cosmic evolution. It's on ABC TV just after 10 pm .

L U N A R E C L I P S E

If the Moon moved around the Earth in the same plane as the Earth moves around the Sun (the plane of the ecliptic), then we would witness a solar eclipse every New Moon and a lunar eclipse every Full Moon . This is clearly not the case: the Moon's orbit is inclined about 5° to the ecliptic .

The Moon's orbit and the ecliptic intersect at two points known as nodes . As the Earth orbits the Sun, the nodes maintain their alignment relative to space . A line drawn between the nodes will align with an Earth-Sun line twice during the Earth's yearly orbit around the Sun . This gives rise to two eclipse seasons when the three bodies can lie in a straight line .

If the order is Sun-Earth-Moon then a lunar eclipse occurs as the Moon passes through the Earth's shadow .

The Earth casts a cone of complete shadow (called umbra) which is surrounded by a region of lesser shadow (called penumbra) . In a total lunar eclipse, the Moon moves fully into the umbra . A partial lunar eclipse occurs when the Moon is only partly obscured by the umbra . If the Moon passes through only the penumbra, then its brightness is only slightly decreased and the eclipse is called a penumbral lunar eclipse .

The Moon is still usually visible in a total lunar eclipse as the Earth's atmosphere refracts light (though mainly the red portion) into the umbral region . The fully eclipsed moon usually appears brick-red, although the colour and brightness varies greatly according to the properties of the Earth's upper atmosphere at the time . It is influenced by such things as volcanic and meteoritic activity . This means there is always an element of surprize in the observation of a total lunar eclipse.

The nodal alignment actually regresses by days per year, so three eclipse seasons can occur within one year. This year, 1982, is an example of this, with seven eclipses (the maximum possible for one year) occurring .

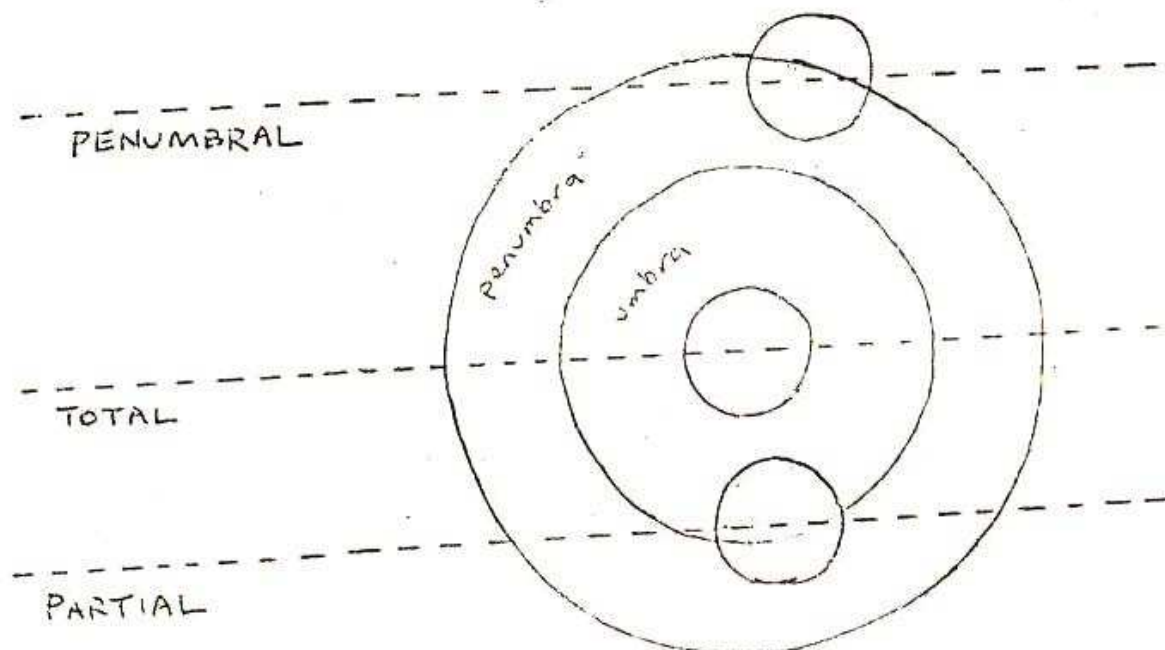
The second eclipse season for 1982 contains three eclipses :

June 21	Partial eclipse of the Sun
July 6	Total eclipse of the Moon
July 20	Partial eclipse of the Sun .

Neither of the solar eclipses is visible from Australia . On Tuesday July 6 , local observers will be able to see the latter half of the lunar eclipse, the Moon being already totally eclipsed as it rises .

The 1982 A.S.V. Yearbook gives the following details:

Total eclipse begins	16h 37m AEST
Melbourne Moonrise	17h 09m
Mid-eclipse	17h 30m
Total eclipse ends	18h 24m
Moon leaves umbra	19h 28m
Moon leaves penumbra	20h 39m



TYPES OF LUNAR ECLIPSE.

S K Y N O T E S

for July

On Jul 4 the Earth reaches its most distant point from the Sun (known as aphelion) when it is located 94,479,300 miles away (152,045,500 km) .

The total lunar eclipse on July 6 (see inner pages) should be the month's viewing highlight . Though not fully visible to local observers, the period of total eclipse is at the maximum as the Moon will pass centrally through the Earth's shadow .

Mercury is moving closer to the rising Sun, and will too close to view by mid-July . The planet will be at superior conjunction on July 25 .

Venus is still a brilliant morning object, although it is beginning to move closer to the Sun . By the middle of the month it will be found about 30° from the Sun . On July 4, Venus will be found 4° north of the star Aldebaran in Taurus .

The three superior planets are now only evening objects, setting around midnight . Mars and Saturn will be in conjunction on July 10, when Mars will pass 3.1° south of Saturn . On July 21, Mars passes just 1.6° north of Spica in Virgo .

July 10 (day 191)

Sunrise 7.33 Sunset 17.15

	RA	Dec	Mag	Rise	Set
	h.m			h.m	h.m
Mercury	6.04	22.45	-0.6	6.27	15.55
Venus	5.05	21.36	-3.4	5.23	15.01
Mars	13.02	- 7.05	0.5	11.49	0.31
Jupiter	13.56	-10.35	-1.7	12.31	1.36
Saturn	13.02	- 3.57	1.0	11.59	0.21

The Moon:	New Moon	June 22	July 21
	First Qtr	June 29	July 28
	Full Moon	July 7	
	Last Qtr	July 15	
	Perigee	June 22	July 20
	Apogee	July 6	

