

THE
ASTRONOMICAL
SOCIETY
OF
SOUTH AFRICA

HANDBOOK FOR
1956

ASTRONOMICAL SOCIETY OF SOUTH AFRICA

1955—1956

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The Astronomical Society of South Africa was formed in July, 1922, by the amalgamation of the Cape and Johannesburg Astronomical Associations which had been in active existence for several years. The declared objects of the Society are:—

- (1) The encouragement and stimulation of the study of Astronomy in South Africa;
- (2) The association of observers and their organisation in the work of astronomical observation and research;
- (3) The dissemination throughout South Africa of such current astronomical information as may be helpful to observers;
- (4) The publication from time to time of the results of the work accomplished by the Society.

Membership is open to all who are interested in Astronomy. The Society issues a series of duplicated notes monthly and distributes to each member a copy of *Sky and Telescope*, an illustrated monthly astronomical magazine published in America. There are also a number of autonomous local centres which hold regular meetings. Details of these will be found on inside back cover.

All communications about the Society should be addressed to The Hon. Secretary, c/o The Royal Observatory, Observatory, Cape.

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PREFACE

The arrangement of the Handbook follows closely that of the past few years. This Handbook is meant to cater for the naked eye observer, rather than for the possessor of a telescope. It is felt that the latter should make every effort to acquire access to such excellent handbooks as those published by the British Astronomical Association and the Royal Astronomical Society of Canada.

The Handbook has been prepared by the Transvaal Centre Branch of the Computing Section with the exception of the section dealing with Bright Variable Stars which was contributed by Mr. R. P. de Kock.

TIME

All the times given in this booklet are South African Standard Time, that is, mean solar time for a meridian 30° (or two hours) east of Greenwich.

To get the local mean time at other places in the Union the longitude difference shown in Table I must be applied to the ordinary S.A.S.T.

TABLE I

Correction for Longitude

Bloemfontein ..	-15 m.	Grahamstown ..	-14 m.
Cape Town ..	-46 "	Johannesburg ..	-08 "
Durban ..	+04 "	Port Elizabeth ..	-18 "
East London ..	-08 "	Pretoria ..	-07 "

Conversely, to get the S.A.S.T. from the local mean time these longitude corrections must be applied with the sign reversed. Thus, the S.A.S.T. of local mean noon (i.e., 12 h. 00 m. local mean time) at Port Elizabeth is 12 h. 18 m.

Owing to the fact that the earth does not go round the sun with uniform circular motion in the plane of the earth's equator, the local apparent solar time (i.e., the time shown by a sundial) differs from the local mean solar time by a quantity which is usually referred to as the "Equation of Time". The Equation of Time must be added to the mean solar time to give the apparent solar time. Its effect is shown in the third column of Table II which gives the S.A.S.T. of noon, that is, of the Sun's transit over the meridian.

Example: Find the S.A.S.T. of apparent noon at Port Elizabeth on November 1.

S.A.S.T. of noon at 30° E...	..	11	44	hr. min.
Correction for longitude		+18	
S.A.S.T. of noon at Port Elizabeth		..	12	02

For many purposes *sidereal time*, that is, local time as measured by the stars, is extremely useful. The sidereal time can be found by applying the S.A.S.T. (on a 24-hour basis) to the corresponding "Sidereal Time at 0 hours S.A.S.T." which is given in the fourth column of Table II and correcting for longitude by means of Table I. A further small correction is needed to allow for the four-minute difference in length between the solar and sidereal day. This correction is given below.

For times between S.A.S.T.:—

03.00	and	09.00	add	1 minutes
09.00	"	15.00	"	2 "
15.00	"	21.00	"	3 "
21.00	"	23.59	"	4 "

Example: Find the sidereal time at 8.15 p.m. on October 4 at Port Elizabeth.

	hr. min.
Sid. time at 00.00 S.A.S.T. on October 4	00 50
S.A.S. Time	20 15
	21 05
Correction for longitude	- 18
Interval Correction	+ 3
Required Sidereal Time	20 50

For recording the time of variable star observations, the *Julian Day* calendar is usually used. This numbers the days consecutively from the beginning of the Julian Era in 4713 B.C. The Julian Day begins at Greenwich mean noon, that is, at 14.00 (2 p.m.) S.A.S.T.

The position of a star in the sky is fixed by its *right ascension* and *declination*, much as the position of a point on the earth is fixed by its longitude and latitude. In fact the right ascension and declination of any star is the longitude and latitude of the point on the earth directly beneath it at zero hours sidereal time at Greenwich. Latitude and declination are always measured in degrees north or south of the equator. Longitude and right ascension are measured either in degrees or in time, 360° being equal to 24 hours (1° equals 4 minutes; $15'$ equals 1 minute). Right ascension is always measured eastwards from the zero celestial meridian, and so is the equivalent of the longitude measured eastwards from the Greenwich meridian.

For considering the motions of the Sun, Moon and Planets, the system of co-ordinates known as *celestial latitude* and *longitude* is very convenient. These co-ordinates define the position of a celestial body with reference to the Ecliptic in exactly the same way as right ascension and declination define its position with reference to the Celestial Equator. The (celestial) latitude is the angular distance of the body north or south of the ecliptic, while the longitude is the distance from the Vernal Equinox as measured eastwards along the Ecliptic. Celestial latitude and longitude are usually measured in degrees.

The Ecliptic is defined by the apparent path of the sun about the earth. The latitude of the sun is therefore always (approximately) zero, whilst its longitude increases by approximately 1° per day.

TABLE II

Date	Julian Date at 14 hours	S.A.S.T. of Sun's Transit			Sidereal Time				
					at 0 hrs.		at 18 hrs.		
		<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>	
January	8	2,435,481.0	12	06	23	07	06	01	09
"	18	491.0	12	10	13	07	45	01	48
"	28	501.0	12	12	51	08	25	02	28
February	7	511.0	12	14	10	09	04	03	07
"	17	521.0	12	14	10	09	44	03	46
"	27	531.0	12	12	58	10	23	04	26
March	8	541.0	12	10	51	11	02	05	05
"	18	551.0	12	08	08	11	42	05	45
"	28	561.0	12	05	07	12	21	06	24
April	7	2,435,571.0	12	02	09	13	01	07	04
"	17	581.0	11	59	35	13	40	07	43
"	27	591.0	11	57	36	14	19	08	22
May	7	601.0	11	56	29	14	59	09	02
"	17	611.0	11	56	18	15	38	09	41
"	27	621.0	11	57	02	16	18	10	21
June	6	631.0	11	58	32	16	57	11	00
"	16	641.0	12	00	33	17	37	11	40
"	26	651.0	12	02	42	18	16	12	19
July	6	2,435,661.0	12	04	36	18	55	12	58
"	16	671.0	12	05	56	19	35	13	38
"	26	681.0	12	06	24	20	14	14	17
August	5	691.0	12	05	53	20	54	14	57
"	15	701.0	12	04	24	21	33	15	36
"	25	711.0	12	02	01	22	13	16	16
September	4	721.0	11	58	59	22	52	16	55
"	14	731.0	11	55	33	23	31	17	34
"	24	741.0	11	52	00	00	11	18	14
October	4	2,435,751.0	11	48	44	00	50	18	53
"	14	761.0	11	46	03	01	30	19	33
"	24	771.0	11	44	14	02	09	20	12
November	3	781.0	11	43	37	02	49	20	52
"	13	791.0	11	44	21	03	28	21	31
"	23	801.0	11	46	28	04	07	22	10
December	3	811.0	11	49	53	04	47	22	50
"	13	821.0	11	54	16	05	26	23	29
"	23	2,435,831.0	11	59	10	06	06	00	09

ECLIPSES

There will be four eclipses during 1956, two of the Sun and two of the Moon. These are as follows:

- I May 24 Partial eclipse of the Moon, the end visible from South Africa.
- II June 8 Total eclipse of the Sun, visible from the South Pacific Ocean.
- III November 18 .. Total eclipse of the Moon, not visible from South Africa.
- IV December 2 .. Partial eclipse of the Sun, not visible from South Africa.

The circumstances of the partial lunar eclipse are as follows:—

	<i>d.</i>	<i>h.</i>	<i>m.</i>
Moon enters penumbra	May 24	14	35.3
Moon enters umbra		15	48.7
Middle of the eclipse		17	31.3
Moon leaves umbra		19	13.8
Moon leaves penumbra		20	27.3
Position Angle of First Contact			67°
Position Angle of Last Contact			303°
Magnitude of eclipse (Moon's diameter = 1.0)			0.970

Time of Sunset, which is also the time of Moonrise:

Durban 17.00, Johannesburg 17.20, Port Elizabeth 17.14, Cape Town 17.43.

PHASES OF THE MOON

Last Quarter		New Moon		First Quarter		Full Moon	
<i>d.</i>	<i>h. m.</i>	<i>d.</i>	<i>h. m.</i>	<i>d.</i>	<i>h. m.</i>	<i>d.</i>	<i>h. m.</i>
Jan. 5	00 41	Jan. 13	05 01	Jan. 21	03 58	Jan. 27	16 40
Feb. 3	18 08	Feb. 11	23 38	Feb. 19	11 21	Feb. 26	03 41
Mar. 4	13 53	Mar. 12	15 36	Mar. 19	19 13	Mar. 26	15 11
Apr. 3	10 06	Apr. 11	04 39	Apr. 18	01 28	Apr. 25	03 43
May 3	04 55	May 10	15 04	May 17	07 15	May 24	17 26
June 1	21 13	June 8	23 29	June 15	13 56	June 23	08 13
July 1	10 40	July 8	06 37	July 14	22 46	July 22	23 29
July 30	21 31	Aug. 6	13 25	Aug. 13	10 45	Aug. 21	14 38
Aug. 29	06 13	Sept. 4	20 57	Sept. 12	02 13	Sept. 20	05 19
Sept. 27	13 25	Oct. 4	06 24	Oct. 11	20 44	Oct. 19	19 24
Oct. 26	20 02	Nov. 2	18 43	Nov. 10	17 09	Nov. 18	08 44
Nov. 25	03 12	Dec. 2	10 12	Dec. 10	13 51	Dec. 17	21 06
Dec. 24	12 10						

OCCULTATIONS VISIBLE AT CAPE TOWN AND JOHANNESBURG

Date	N.Z.C.*	Mag.	Phase	Cape Town			Johannesburg		
				Time		P.A.	Time		P.A.
				h.	m.	°	h.	m.	°
January 3	1623	5.4	R	04	17.0	303	04	15.7	341
Febry. 3	2029	5.1	R	No occultation			01	07.7	258
6	MAKS	1.4	D	08	23.5	76	09	08.9	45
6	MAKS	1.4	R	10	08.8	282	10	31.7	302
18	472	5.0	D	20	52.0	51	Graze		
21	976	3.2	D	23	07.7	38	No occultation		
21	976	3.2	R	23	36.4	353	No occultation		
28	1853	4.9	R	22	09.3	305	21	54.8	333
March 7	2791	5.4	R	04	51.1	332	No occultation		
20	1077	4.0	D	21	24.9	93	21	59.9	47
21	1207	5.8	D	20	14.3	164	20	15.1	129
31	2310	4.6	R	00	20.2	343	No occultation		
April 3	2734	5.4	R	Graze			04	54.0	236
7	3229	5.6	R	05	18.4	213	Sun		
14	709	4.3	D	19	53.8	19	No occultation		
30	2666	5.0	R	00	35.2	295	No occultation		
May 1	2814	5.0	R	No occultation			01	49.2	225
27	2633	4.0	D	03	07.6	98	03	36.2	81
27	2633	4.0	R	04	34.3	235	05	03.7	246
27	2638	5.4	R	05	39.4	289	05	57.0	300
31	3133	5.8	R	02	15.8	234	02	33.7	256
June 17	1930	5.6	D	19	32.4	125	19	49.2	34
18	1949	5.8	D	01	09.2	51	No occultation		
25	2969	3.2	D	22	25.1	53	22	53.3	10
25	2969	3.2	R	23	37.0	278	23	33.4	316
26	3093	4.5	D	Graze			23	35.6	165
27	3093	4.5	R	Graze			00	45.1	207
July 18	2282	5.9	D	No occultation			02	04.1	148
20	2666	5.0	D	19	52.6	54	No occultation		
21	2814	5.0	D	No occultation			21	19.6	112
August 10	1853	4.9	D	19	36.6	62	No occultation		
13	2217	5.5	D	19	13.1	63	No occultation		
14	2376	4.6	D	23	54.6	156	23	57.8	132
16	2633	4.0	D	22	09.7	147	22	22.0	119
16	2638	5.4	D	22	55.2	75	23	25.1	63
23	3501	5.3	R	No occultation			22	53.6	185
Sept. 10	2307	4.1	D	18	41.0	110	19	05.4	85
10	2310	4.6	D	Graze			19	40.4	132
15	2969	3.2	R	18	50.9	244	19	11.6	267
16	3093	4.5	D	No occultation			18	42.7	113
23	432	5.9	R	23	29.9	198	23	42.3	211
Oct. 11	2826	4.0	D	22	16.4	111	22	33.2	103
26	1158	5.2	R	No occultation			01	56.2	222
Nov. 20	792	5.1	R	01	44.6	283	02	02.0	303
Dec. 20	1210	5.9	R	Graze			02	30.1	259
25	1815	4.8	R	No occultation			03	27.3	246

THE PLANETS

The chart shows the S.A.S.T. of the rising and setting of the Sun and Planets at a place whose latitude and longitude are 30° S, 30° E. The approximate times for other places can be found by applying the longitude differences shown in Table I with the sign reversed, e.g., for Cape Town add 46 minutes to the times given by the chart, for Durban subtract 4 minutes. The correction for latitude will in general be sufficiently small to be ignored and in no case will it exceed 15 minutes.

Mercury will be most easily seen just after sunset near the time of the evening elongation in August/September and just before sunrise near the morning elongations in February and June. Its magnitude on these occasions will be $+0.4$, $+0.2$ and $+0.4$.

Venus will be visible as a conspicuous evening star from January to June and as a morning star from July to December. It reaches its maximum brightness of magnitude -4.2 in May and again at the end of July.

Mars, which is in opposition in September, will be a conspicuous object throughout most of the year. Its magnitude at the beginning of the year, when it rises early in the morning, is only -1.7 , but it gets steadily brighter until the time of opposition when it reaches a magnitude of -2.6 , that is, it will be brighter than Jupiter. The distance from the Earth varies from 195,000,000 miles on January 1 to 35,200,000 miles on September 10 to 97,500,000 miles on December 31.

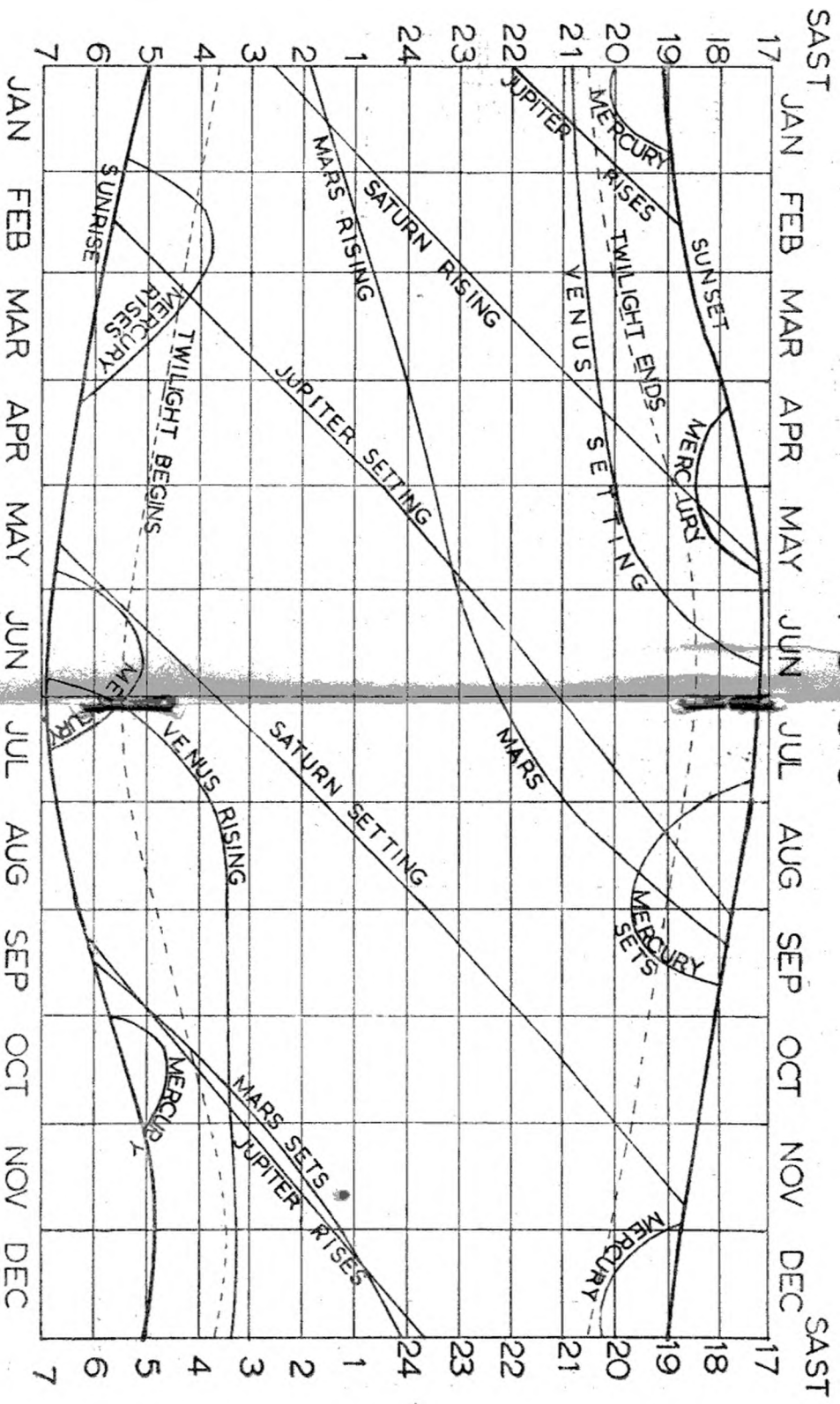
Jupiter rising two hours before midnight at the beginning of the year reaches opposition in the middle of February and then remains a fine object in the evening sky until August. In October, Jupiter will be rising in the morning twilight and will be close to Venus on the 25th. Jupiter and Venus will then form a prominent pair in the morning sky, having magnitudes of -1.3 and -3.6 respectively.

Saturn is visible in the morning during January and February, and during the whole night in March, April and May. It will be an evening object in September and October.

Neither **Uranus** (magnitude 5.7) nor **Neptune** (magnitude 7.7) are readily visible to the naked eye, but both are easy telescopic objects. Uranus is in Cancer and most easily observed at the beginning of the year. It is in opposition on January 21. Neptune is in Virgo and is in opposition on April 19.

THE PLANETS AS SEEN FROM SOUTH AFRICA.

1956



Latitude 30° South.

Longitude 30° East.

METEOR CALENDAR, 1956

Date	Shower	Radiant		Maximum			Nature of Current
				Date	Rate per hour	Transit of Radiant	
Jan. 3 ..	Quadrantids	227°	+ 46°	Jan. 3	40	h. 08·5	Unknown.
Mar. 12— April 25	Hydrads	184°	- 27°	Mar. 25	?	00·0	Unknown.
March 1— May 10	Virginids ..	200°	- 6°	April 3	?	00·0	Ecliptical.
April 12-24	Lyrids ..	273°	+ 35°	April 21	12	04·0	Cometary: Comet 1861 I
April 29— May 21	Eta Aquarids	338°	- 1°	May 5	10	07·6	Cometary: Halley.
April 20— July 30	Sci-Sgr. System	270°	- 30°	June 14	?	00·5	Ecliptical.
July 25— Aug. 10	Delta Aquarids	343°	- 17°	July 28	20	02·0	Ecliptical.
July 20— Aug. 19	Perseids	43°	+ 56°	Aug. 11	50	05·6	Cometary: Comet 1862 III
July 25— Sept. 8	Cygnids ..	324°	+ 51°	Aug. 16	?	00·0	Unknown.
Aug. 16— Oct. 8	Piscids ..	0°	+ 4°	Sept. 12	?	00·5	Ecliptical.
Oct. 11-30	Orionids* ..	94°	+ 16°	Oct. 22	20	04·4	Cometary: Halley.
Sept. 24— Dec. 10	Taurids ..	58°	+ 21°	Nov. 13	6	00·6	Ecliptical.
Nov. 16	Leonids ..	151°	+ 21°	Nov. 16	6	06·5	Cometary: Comet 1866 I
Dec. 5-12	Geminids ..	113°	+ 30°	Dec. 12	30	02·0	Ecliptical.
Dec. 5— Jan. 7	Velids ..	149°	- 51°	Dec. 29	?	03·5	Unknown.

* According to Prentice (Director of the Meteor Section of the B.A.A.), this shower has a probable period of 16 years.

Much of the above information is derived from Hoffmeister's "Meteorströme" (Meteoric Streams) published in 1948. The orbits of the Cometary Currents are closely related to the orbits of the comets indicated, and those of the Ecliptical Currents to the orbits of certain minor planets.

For the moon during the above periods see the Astronomical Diary.

BRIGHT VARIABLE STARS

Name	Position (1950)		Range	Period	Expected Maxima 1956
	R.A.	Dec.			
	<i>h. m.</i>	<i>° ′</i>		<i>d</i>	
o Ceti (Mira)	2 17	-3 15	3.4-9.2	331	Jan. 1
R. Doradus	4 36	-60 10	5.8-6.6	335	Apr. 8
R. Pictoris	4 45	-49 20	6.5-10	Irreg. (160?)	
L. Puppis	7 12	-44 34	3.1-6.3	Irreg. (140?)	
R. Carinae	9 31	-62 34	4.0-10	309	Feb. 9, Dec. 14
S Carinae	10 08	-61 18	5.4-9.5	140	Feb. 17, July 15, Dec. 11
R. Hydrae	13 27	-23 01	4.2-9.5	387	Oct. 28
T Centauri	13 30	-33 21	6.1-8.0	91	Mar. 4, June 3, Sept. 2, Dec. 2
R. Aquarii	23 41	-15 34	6.4-10.3	387	Dec. 29

SPECIAL ARTICLES IN PREVIOUS HANDBOOKS

1949, page 11	Celestial Objects of Interest to the Owners of Small Telescopes.
1949, page 16	Principal Elements of the Solar System.
1950, page 13	Jupiter's Satellites.
1950, page 15	Saturn's Satellites.
1950, page 17	Eclipses.
1951, page 12	The Constellations.
1951, page 14	The Stars in Summer, Autumn, Winter and Spring.
1951, page 16	The South African Observatories.
1952, page 18	The Calendar.
1953, page 19	Transits of Mercury and Venus.
1954, page 16	The Satellites of the Solar System.

ASTRONOMICAL DIARY

JANUARY 1956

Last Quarter 5d. 00h. 41m. New Moon 13d. 05h. 01m.

First Quarter 21d. 00h. 58m. Full Moon 27d. 16h. 40m.

Venus sets nearly two hours after the Sun. Mars and Saturn are close together in the middle of the month and rise in the early morning. Jupiter rises in the late evening.

	<i>d.</i>	<i>h.</i>	
Jan.	2	01	Jupiter in conjunction with the Moon, Jupiter 7° N.
	2		Earth at Perihelion, distance 0.983 astronomical units.
	8	13	Mars in conjunction with the Moon, Mars 2° N.
	8	20	Saturn in conjunction with the Moon, Saturn 4° N.
	11		Mercury at greatest elongation, 19° E.
	14	23	Mars in conjunction with Saturn, Mars $1^{\circ}.6$ S.
	15		Mercury in conjunction with the Moon, Mercury 4° S.
	16	11	Venus in conjunction with the Moon, Venus 7° S.
	18		Mercury at a stationary point.
	21		Uranus in Opposition.
	26	23	Mars in conjunction with Antares, Mars $5^{\circ}.0$ N.
	27	21	Jupiter in conjunction with Regulus, Jupiter $0^{\circ}.7$ N.
	27		Mercury in inferior conjunction with the Sun.
	29	08	Jupiter in conjunction with the Moon, Jupiter 6° N.

FEBRUARY 1956

Last Quarter 3d. 18h. 08m. New Moon 11d. 23h. 38m.

First Quarter 19d. 11h. 21m. Full Moon 26d. 03h. 41m.

Mercury is visible in the morning sky during the latter half of the month. Venus is an evening star. Mars rises about an hour after midnight; Saturn near midnight. Jupiter rises at sunset and is visible throughout the night.

	<i>d.</i>	<i>h.</i>	
Feb.	2		Neptune at a stationary point.
	5	07	Saturn in conjunction with the Moon, Saturn 3° N.
	6	09	Mars in conjunction with the Moon, Mars $0^{\circ}.2$ N.
	6		Mars occulted by the Moon.
	8		Mercury at a stationary point.
	9	24	Mercury in conjunction with the Moon, Mercury 1° S.
	15	13	Venus in conjunction with the Moon, Venus 6° S.
	16		Jupiter in Opposition.
	17		Pluto in opposition.
	21		Mercury at greatest elongation, 27° W.
	25	13	Jupiter in conjunction with the Moon, Jupiter 6° N.

MARCH 1956

Last Quarter 4d. 13h. 53m. New Moon 12d. 15h. 35m.

First Quarter 19d. 19h. 13m. Full Moon 26d. 15h. 11m.

Venus is an evening star. Mars rises after midnight. Jupiter is visible throughout the night. Saturn rises in the late evening.

	<i>d.</i>	<i>h.</i>	
Mar.	3	17	Saturn in conjunction with the Moon, Saturn 3 ^h N.
	6	07	Mars in conjunction with the Moon, Mars 2 ^h S.
	11	02	Mercury in conjunction with the Moon, Mercury 7 ^h S.
	12		Saturn at a stationary point.
	16	06	Venus in conjunction with the Moon, Venus 1 ^h S.
	20	17	Equinox.
	23	17	Jupiter in conjunction with the Moon, Jupiter 6 ^h N.
	31	01	Saturn in conjunction with the Moon, Saturn 3 ^h N.

APRIL 1956

Last Quarter 3d. 10h. 06m. New Moon 11d. 04h. 39m.

First Quarter 18d. 01h. 28m. Full Moon 25d. 03h. 40m.

Venus remains a conspicuous object in the evening sky. Mars rises just before midnight. Jupiter will be visible till the early hours of the morning. Saturn rises about two hours after sunset.

	<i>d.</i>	<i>h.</i>	
Apr.	4	07	Mars in conjunction with the Moon, Mars 4 ^h S.
	5		Uranus at a stationary point.
	6		Mercury in superior conjunction with the Sun.
	12		Venus at greatest elongation 46 ^h E.
	14	16	Venus in conjunction with the Moon, Venus 4 ^h N.
	14	22	Venus in conjunction with Aldebaran, Venus 9 ^h .1 N.
	17		Jupiter at a stationary point.
	19	21	Jupiter in conjunction with the Moon, Jupiter 6 ^h N.
	19		Neptune in Opposition.
	27	07	Saturn in conjunction with the Moon, Saturn 5 ^h N.

MAY 1956

Last Quarter 3d. 04h. 55m. New Moon 10d. 15h. 04m.

First Quarter 17d. 07h. 15m. Full Moon 24d. 17h. 26m.

Venus is still an evening star. Mars rises before midnight about the time that Jupiter sets. Saturn is visible throughout the night.

	<i>d.</i>	<i>h.</i>	
May	2		Mercury at greatest elongation, 21 ^h E.
	3	06	Mars in conjunction with the Moon, Mars 7 ^h S.
	10		Pluto at a stationary point.
	11	22	Mercury in conjunction with the Moon, Mercury 2 ^h N.
	13	15	Venus in conjunction with the Moon, Venus 6 ^h N.
	14		Mercury at a stationary point.
	16		Venus at greatest brilliancy; magnitude -4.2.
	17	05	Jupiter in conjunction with the Moon, Jupiter 7 ^h N.
	20		Saturn in Opposition.
	24	11	Saturn in conjunction with the Moon, Saturn 3 ^h N.
	24		Partial eclipse of the Moon.
	26		Mercury in inferior conjunction with the Sun.
	31		Venus at a stationary point.

JUNE 1956

Last Quarter 1d. 21h. 13m. New Moon 8d. 23h. 29m.

First Quarter 15d. 13h. 56m. Full Moon 23d. 08h. 13m.

Venus disappears into the evening twilight. Mercury is visible as a morning star during the second half of the month. Mars rises and Jupiter sets well before midnight. Saturn can be observed until the early hours of the morning.

	<i>d.</i>	<i>h.</i>	
June	1	62	Mars in conjunction with the Moon, Mars 8° S.
	7	20	Mercury in conjunction with the Moon, Mercury 5° S.
	7		Mercury at a stationary point.
	8		Total eclipse of the Sun, not visible in South Africa.
	10	07	Venus in conjunction with the Moon, Venus 3° N.
	13	17	Jupiter in conjunction with the Moon, Jupiter 7° N.
	20	13	Saturn in conjunction with the Moon, Saturn 3° N.
	20		Mercury at greatest elongation, 23° W.
	21	12	Solstice.
	22		Venus in inferior conjunction with the Sun.
	23	10	Mercury in conjunction with Aldebaran, Mercury 2° 5' N.
	29	16	Mars in conjunction with the Moon, Mars 10° S.

JULY 1956

Last Quarter 1d. 10h. 40m. New Moon 8d. 06h. 37m.

First Quarter 14d. 22h. 46m. Full Moon 22d. 23h. 29m.

Last Quarter 30d. 21h. 31m.

Venus rises about two hours before the Sun in the morning sky. Mars rises about two hours before midnight. Jupiter sets about three hours after sunset. Saturn is visible until the early hours of the morning.

	<i>d.</i>	<i>h.</i>	
July	2	11	Jupiter in conjunction with Regulus, Jupiter 0° 6' N.
	3	22	Mercury in conjunction with Venus, Mercury 3° 3' N.
	5		Earth at Aphelion, distance 1.017 astronomical units.
	6	19	Venus in conjunction with the Moon, Venus 3° S.
	7	07	Mercury in conjunction with the Moon, Mercury 2° N.
	9		Neptune at a stationary point.
	11	09	Jupiter in conjunction with the Moon, Jupiter 7° N.
	13		Venus at a stationary point.
	17	17	Saturn in conjunction with the Moon, Saturn 3° N.
	19		Mercury in superior conjunction with the Sun.
	25		Uranus in conjunction with the Sun.
	27	16	Mars in conjunction with the Moon, Mars 11° S.
	29		Venus at greatest brilliancy; magnitude -4.2.
	31		Saturn at a stationary point.

AUGUST 1956

New Moon 6d. 13h. 25m. First Quarter 13d. 10h. 45m.

Full Moon 21d. 14h. 38m. Last Quarter 29d. 06h. 13m.

Mercury is visible after sunset in the evening sky. Venus is a brilliant object in the morning sky. Mars rises about two hours after sunset. Jupiter sets in the evening twilight, and is close to Mercury on the 9th. Saturn sets near midnight.

	<i>d.</i>	<i>h.</i>	
Aug.	3	15	Venus in conjunction with the Moon, Venus 3° S.
	5	06	Mercury in conjunction with Regulus, Mercury 0° ⁹ N.
	8		Mercury in conjunction with the Moon, Mercury 6° N.
	8	05	Jupiter in conjunction with the Moon, Jupiter 6° N.
	9	20	Mercury in conjunction with Jupiter, Mercury 0° ² S.
	11		Mars at a stationary point.
	13	23	Saturn in conjunction with the Moon, Saturn 3° N.
	21		Pluto in conjunction with the Sun.
	23	23	Mars in conjunction with the Moon, Mars 12° S.
	31		Mercury at greatest elongation, 27° E.
	31		Venus at greatest elongation, 46° W.

SEPTEMBER 1956

New Moon 4d. 20h. 57m. First Quarter 12d. 02h. 13m.

Full Moon 20d. 05h. 19m. Last Quarter 27d. 13h. 25m.

Mercury is visible in the evening sky during the first half of the month. Venus rises about two and a half hours before the Sun. Mars dominates the evening sky and is visible throughout the night. Saturn is visible until the late evening.

	<i>d.</i>	<i>h.</i>	
Sept.	1	14	Venus in conjunction with the Moon, Venus 1° N.
	2	17	Venus in conjunction with Pollux, Venus 9° ⁵ S.
	4		Jupiter in conjunction with the Sun.
	6	19	Mercury in conjunction with the Moon, Mercury 0° ⁸ N.
	10	09	Saturn in conjunction with the Moon, Saturn 2° N.
	10		Mars in Opposition.
	13		Mercury at a stationary point.
	14	08	Venus in conjunction with Uranus, Venus 2° ³ S.
	19	16	Mars in conjunction with the Moon, Mars 11° S.
	23	04	Equinox.
	26		Mercury in inferior conjunction with the Sun.

OCTOBER 1956

New Moon 4d. 06h. 24m. First Quarter 11d. 20h. 44m.

Full Moon 19d. 19h. 24m. Last Quarter 26d. 20h. 02m.

Venus rises about two hours before the Sun. Jupiter rises out of the morning twilight and is close to Venus on the 25th. Mars is visible through the night till just before sunrise. Saturn sets about two hours after the Sun.

	<i>d.</i>	<i>h.</i>	
Oct.	1	04	Venus in conjunction with the Moon, Venus 5° N.
	2	20	Jupiter in conjunction with the Moon, Jupiter 6° N.
	4		Mercury at a stationary point.

5	16	Venus in conjunction with Regulus, Venus $0^{\circ}.4$ S.
7	22	Saturn in conjunction with the Moon, Saturn 2° N.
12		Mercury at greatest elongation, 18° W.
12		Mars at a stationary point.
16	17	Mars in conjunction with the Moon, Mars 9° S.
23		Neptune in conjunction with the Sun.
25	16	Venus in conjunction with Jupiter, Venus $0^{\circ}.2$ N.
26	11	Mercury in conjunction with Spica, Mercury $4^{\circ}.0$ N.
30	13	Jupiter in conjunction with the Moon, Jupiter 6° N.
30	23	Venus in conjunction with the Moon, Venus 6° N.

NOVEMBER 1956

New Moon 2d. 18h. 43m. First Quarter 10d. 17h. 09m.

Full Moon 18d. 08h. 44m. Last Quarter 25d. 03h. 12m.

Venus and Jupiter rise about two hours before the Sun. Mars is visible till after midnight. Saturn sets in the evening twilight.

	<i>d.</i>	<i>h.</i>	
Nov.	4	12	Saturn in conjunction with the Moon, Saturn 1° N.
	12		Mercury in superior conjunction with the Sun.
	12		Uranus at a stationary point.
	13	14	Mars in conjunction with the Moon, Mars 7° S.
	18	20	Venus in conjunction with Spica, Venus $4^{\circ}.2$ N.
	18		Total eclipse of the Moon, not visible in South Africa.
	26	17	Venus in conjunction with Neptune, Venus $0^{\circ}.2$ N.
	27	03	Jupiter in conjunction with the Moon, Jupiter 6° N.
	27		Saturn in conjunction with the Sun.
	29	19	Venus in conjunction with the Moon, Venus 4° N.

DECEMBER 1956

New Moon 2d. 10h. 12m. First Quarter 10d. 13h. 51m.

Full Moon 17d. 21h. 06m. Last Quarter 24d. 12h. 10m.

Venus is still visible in the morning sky before sunrise. Mars sets and Jupiter rises just after midnight.

	<i>d.</i>	<i>h.</i>	
Dec.	2		Partial eclipse of the Sun, not visible in South Africa.
	7		Pluto at a stationary point.
	11	22	Mars in conjunction with the Moon, Mars 5° S.
	21	19	Saturn in conjunction with Antares, Saturn $6^{\circ}.3$ N.
	21	23	Solstice.
	24	14	Jupiter in conjunction with the Moon, Jupiter 6° N.
	25		Mercury at greatest elongation, 20° E.
	26	12	Venus in conjunction with Antares, Venus $5^{\circ}.8$ N.
	26	23	Venus in conjunction with Saturn, Venus $0^{\circ}.5$ S.
	29	15	Saturn in conjunction with the Moon, Saturn $0^{\circ}.7$ N.
	29	21	Venus in conjunction with the Moon, Venus $0^{\circ}.2$ S.

OBSERVING SECTIONS

A number of observing sections has been formed to encourage amateurs to undertake useful research. Enquiries about these observing sections should be addressed to the Directors whose names and addresses are given below:—

Variable Stars

Mr. R. P. DE KOCK, The Royal Observatory, Observatory, Cape.

Meteor Section

Mr. S. C. VENTER, P.O. Box 1416, Pretoria, Transvaal.

Computing and Occultation Section

Mr. W. P. HIRST, "Water's Edge," Greenbanks Rd., Rondebosch, Cape.

Planetary Section

Mr. I. R. H. BRICKETT, c/o Transvaal Centre, Union Observatory, Johannesburg.

CAPE CENTRE

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Vice-Chairman: Professor G. H. Menzies.

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Hon. Treasurer: Mr. H. E. Krumm.

Hon. Auditor: Mr. A. Menzies.

Committee: Dr. A. W. J. Cousins, Messrs. R. B. Borchers, B. Chiat, H. O. Painczyk and E. H. Tibbits.

Meetings are held on the 2nd Wednesday of each month at the Royal Observatory at 8 p.m., except December, January, February and July.

TRANSVAAL CENTRE

Chairman: Dr. M. W. Feast.

Vice-Chairman: Mr. I. R. H. Brickett.

Hon. Secretary: Miss E. Kinder.

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Committee: Messrs. M. D. Overbeek, G. Knipe, J. A. Bruwer, S. C. Venter, H. C. Lagerweij, J. H. Botham.

Pretoria Representative: Mr. J. L. Jooste.

All communications should be addressed to the Hon. Secretary, Union Observatory, Observatory, Johannesburg, or to the Pretoria Representative at 495 Prinsloo Street, Pretoria.

Observing and lecture meetings are held on alternate months throughout the year.

PORT ELIZABETH CENTRE

Chairman: Mr. J. C. Bentley.

Vice-Chairman: Professor N. M. S. Immelman.

Secretary: Mr. W. L. Schlesinger.

Treasurer: Mr. E. Jansen.

Committee: Messrs. H. Welsh, V. Shutt, E. Warring, G. Anderson, H. Smith, B. Simpson, E. Blignaut, F. de Lange.

All communications should be addressed to the Hon. Secretary, 120a, Princes Street, Port Elizabeth, Cape. Meetings are held on the last Thursday of each month.

CALENDAR for 1956

JANUARY								FEBRUARY								MARCH							
S	M	T	W	Th	F	S		S	M	T	W	Th	F	S		S	M	T	W	Th	F	S	
1	2	3	4	5	6	7		-	-	-	1	2	3	4		-	-	-	-	1	2	3	
8	9	10	11	12	13	14		5	6	7	8	9	10	11		4	5	6	7	8	9	10	
15	16	17	18	19	20	21		12	13	14	15	16	17	18		11	12	13	14	15	16	17	
22	23	24	25	26	27	28		19	20	21	22	23	24	25		18	19	20	21	22	23	24	
29	30	31	-	-	-	-		26	27	28	29	-	-	-		25	26	27	28	29	30	31	
APRIL								MAY								JUNE							
S	M	T	W	Th	F	S		S	M	T	W	Th	F	S		S	M	T	W	Th	F	S	
1	2	3	4	5	6	7		-	-	1	2	3	4	5		-	-	-	-	-	1	2	
8	9	10	11	12	13	14		6	7	8	9	10	11	12		3	4	5	6	7	8	9	
15	16	17	18	19	20	21		13	14	15	16	17	18	19		10	11	12	13	14	15	16	
22	23	24	25	26	27	28		20	21	22	23	24	25	26		17	18	19	20	21	22	23	
29	30	-	-	-	-	-		27	28	29	30	31	-	-		24	25	26	27	28	29	30	
JULY								AUGUST								SEPTEMBER							
S	M	T	W	Th	F	S		S	M	T	W	Th	F	S		S	M	T	W	Th	F	S	
1	2	3	4	5	6	7		-	-	-	1	2	3	4		30	-	-	-	-	-	1	
8	9	10	11	12	13	14		5	6	7	8	9	10	11		2	3	4	5	6	7	8	
15	16	17	18	19	20	21		12	13	14	15	16	17	18		9	10	11	12	13	14	15	
22	23	24	25	26	27	28		19	20	21	22	23	24	25		16	17	18	19	20	21	22	
29	30	31	-	-	-	-		26	27	28	29	30	31	-		23	24	25	26	27	28	29	
OCTOBER								NOVEMBER								DECEMBER							
S	M	T	W	Th	F	S		S	M	T	W	Th	F	S		S	M	T	W	Th	F	S	
-	1	2	3	4	5	6		-	-	-	-	1	2	3		30	31	-	-	-	-	1	
7	8	9	10	11	12	13		4	5	6	7	8	9	10		2	3	4	5	6	7	8	
14	15	16	17	18	19	20		11	12	13	14	15	16	17		9	10	11	12	13	14	15	
21	22	23	24	25	26	27		18	19	20	21	22	23	24		16	17	18	19	20	21	22	
28	29	30	31	-	-	-		25	26	27	28	29	30	-		23	24	25	26	27	28	29	

Material and Notices for M.N.A.S.S.A. by 20th of the month.
 Nominations for the Gill Medal by April 8.
 Essay Competition closes May 31.
 Nomination for Officers & Council by June 15.
 Subscriptions due July 1.
 Annual General Meeting 4th Wednesday in July.