THE

ASTRONOMICAL SOCIETY

OF

SOUTHERN AFRICA

HANDBOOK FOR

1957

ASTRONOMICAL SOCIETY OF SOUTHERN AFRICA

1956—1957

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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. Its name was changed to The Astronomical Society of Southern Africa in 1956. The declared objects of the Society are:—

(1) The encouragement and stimulation of the study of Astronomy in Southern Africa;

(2) The association of observers and their organisation in the work of astronomical observation and research;

(3) The dissemination throughout Southern 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, usually, eleven numbers of "The Monthly Notes of the Astronomical Society of Southern Africa" (M.N.A.S.S.A.) each year, and distributes to each member copies of "Sky and Telescope", an illustrated monthly astronomical magazine published in the United States.

All communications for the Society should be addressed to The Honorary Secretary, Astronomical Society of Southern Africa, c/o The Royal Observatory, Observatory, Cape Province.

The Gill Medal of the Astronomical Society of Southern Africa

Designed by Dr Peter Kirchhoff

Awarded 1956 to Dr Harold Knox-Shaw

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OF THE

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1957

Computed and Prepared

by

Members

of the

Society

Cape Town 1957

CONTENTS

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. 00m. 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 8.

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

For many puposes 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 days. 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 9 at Port Elizabeth.

	h.	m.
Sid. time at $00^h.00^m$ S.A.S.T. on October 9	01	09
S.A.S.T.	20	15
	21	24
Correction for longitude		-18
Interval correction		+ 3
Required Sidereal Time.	21	09

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 are 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 thus 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 .

SOUTH AFRICAN OBSERVATORIES

Name	Place	E. Long. 1h+	S.Lat.	Alt. ft	Director
Union	J'h'burg	52m 18s.0	26°10'55"3	5925	W.S. Finsen
Union Annexe	Hartbeesp't	51m 30s	25°46'22"	4002	
Cape	Cape Town	13m 54s.6	33°56'02"5	26	R.H. Stoy
Radcliffe	Pretoria	52m 54s.9	25°47'18"	5059	A.D. Thackeray
Boyden	Bloemf'tein	45m 37s.4	29°02'18"	4551	Alternating
Leiden	Hartbeesp't	51m 30s	25°46'22"	4002	A. Muller
Hilltop	Haenetsburg	59m 44s	23°56'	4600	C. Jackson
People's	Port Elizabeth	42m 20s	33°57'	300	P.E. Centre
Lamont-Hussey	Bloemf'tein	45m 57s	29°05'45"	4887	No Resident Director

TABLE II

Date 1957	Julian Date at 14 hours	S.A.S.T. of Sun's Transit			Sidereal Time at 0 hours	
		h.	m.	s.	h.	m.
January 2	2,435,841.0	12	04	03	6	45
" 12	851.0	12	08	21	7	25
" 22	861.0	12	11	38	8	04
February 1	871.0	12	13	40	8	43
" 11	881.0	12	14	20	9	23
" 21	891.0	12	13	44	10	02
March 3	901.0	12	12	04	10	42
" 13	911.0	12	09	37	11	21
" 23	921.0	12	06	42	12	01
April 2	2,435,931.0	12	03	41	12	40
" 12	941.0	12	00	52	13	19
" 22	951.0	11	58	32	13	59
May 2	961.0	11	56	58	14	38
" 12	971.0	11	56	16	15	18
" 22	981.0	11	56	31	15	57
June 1	2,435,991.0	11	57	40	16	37
" 11	2,436,001.0	11	59	27	17	16
" 21	011.0	12	01	33	17	55
July 1	2,436,021.0	12	03	40	18	35
" 11	031.0	12	05	19	19	14
" 21	041.0	12	06	15	19	54
" 31	051.0	12	06	17	20	33
August 10	061.0	12	05	17	21	12
" 20	071.0	12	03	21	21	52
" 30	081.0	12	00	39	22	31
September 9	091.0	11	57	22	23	11
" 19	101.0	11	53	51	23	50
" 29	2,436,111.0	11	50	24	00	30
October 9	121.0	11	47	21	01	09
" 19	131.0	11	45	03	01	48
" 29	141.0	11	43	47	02	28
November 8	151.0	11	43	47	03	07
" 18	161.0	11	45	11	03	47
" 28	171.0	11	47	57	04	26
December 8	181.0	11	51	52	05	06
" 18	191.0	11	56	34	05	45
" 28	2,436,201.0	12	01	32	06	24

ECLIPSES

There will be four eclipses during 1957, two of the Sun and two of the Moon. These are as follows:

I	April	29-30	Annular eclipse of the Sun, not visible from South Africa.
II	May	13-14	Total eclipse of the Moon, visible from South Africa.
III	October	23	Total eclipse of the Sun, visible in South Africa as a partial eclipse at sunrise.
IV	November	7	Total eclipse of the Moon, the end visible from eastern part of South Africa.

The circumstances of the lunar eclipses are as follows:-

	d.	h.	m.	d.	h.	m.
Moon enters penumbra	May 13	21	41.9	-	-	-
Moon enters umbra		22	44.8	-	-	-
Middle of the eclipse	14	00	30.9	-	-	-
Moon leaves umbra		02	17.0	Nov 7	18	10.5
Moon leaves penumbra		03	20.0		19	23.2
Position angle of First Contact		116°			-	
Position angle of Last Contact		261°			-	
Magnitude of eclipse (Moon's diameter = 1.0)		1.304			-	

Time of Sunset, which is also time of Moonrise

Durban	18	23
Johannesburg	18	30
Port Elizabeth	18	52
Cape Town	19	22

The circumstances of the eclipse of the Sun on October 23 are as follows for Cape Town and Johannesburg:

	Cape Town	Johannesburg
Time of sunrise	$5^h\ 56^m$	$5^h\ 26^m$
Time of greatest phase	Before sunrise	5 33
Magnitude	0.54 at sunrise	0.38 at greatest phase
Eclipse ends	$6^h\ 34^m$	$6^h\ 15^m$

OCCULTATIONS OF NAKED EYE STARS VISIBLE AT CAPE TOWN AND JOHANNESBURG

Date	N.Z.C.	Mag	Phase	Cape Town		Johannesburg	
				h. m.	P.A.°	h. m.	P.A.°
Jan 4	3166	4.8	D	Sun	-	20 8.2	352
12	631	5.6	D	22 36.8	61	23 15.6	32
12	633	5.4	D	N.O.	-	23 47.7	140
13	792	5.1	D	21 54.3	67	22 26.0	45
14	817	4.8	D	2 32.0	60	N.O.	-
25	2275	5.9	R	Low	-	2 2.0	318
26	2425	5.9	R	4 35.2	333	N.O.	-
Feb 7	432	5.9	D	20 9.8	80	20 39.6	53
7	433	5.6	D	N.O.	-	21 19.2	151
18	1971	5.8	R	23 53.5	305	23 38.3	337
Mar 10	995	4.1	D	Graze	-	20 38.3	132
13	1410	5.3	D	23 8.5	164	23 8.9	124
18	1925	1.2	D	1 22.9	133	1 32.5	95
18	1925	1.2	R	2 40.1	281	2 51.2	319
20	2322	4.3	D	23 35.4	111	23 29.8	79
21	2322	4.3	R	0 37.0	276	0 29.5	311
27	3133	5.8	R	5 25.7	203	Sun	-
Apr 4	628	4.8	D	20 5.6	99	Low	
17	2275	5.9	R	4 50.6	215	5 28.0	246
17	2401	5.6	R	22 55.9	255	22 54.5	289
18	2425	5.9	R	5 33.8	199	Sun	-
26	3453	4.9	R	5 36.2	171	Sun	-
May 11	1925	1.2	D	20 30.4	165	20 20.1	125
11	1925	1.2	R	21 21.5	249	21 41.9	292
15	2353	4.6	R	2 9.1	209	2 54.3	247
June 3	1410	5.3	D	19 22.9	94	N.O.	-
11	2322	4.3	D	5 39.4	117	Low	-
15	2876	5.4	R	1 47.2	296	N.O.	-
15	2880	5.1	R	3 7.6	305	N.O.	-
18	3229	5.6	R	0 49.6	189	1 15.2	222
20	3482	5.6	R	3 10.2	190	3 35.7	208

Date	N.Z.C.	Mag	Phase	Cape Town		Johannesburg	
				h. m.	P.A.°	h. m.	P.A.°
Jul 8	Saturn	0.4	D	N.O.	-	17 57.5	178
8	Saturn	0.4	R	N.O.	-	18 17.8	209
9	2401	5.6	D	0 10.9	78	0 40.7	57
20	240	5.6	R	Low	-	1 31.1	224
Aug 7	2658	5.4	D	3 13.4	29	Low	-
8	2913	5.0	D	22 58.9	62	23 34.3	47
14	68	5.7	R	22 53.3	266	22 49.9	289
21	894	4.6	R	N.O.	-	4 25.0	201
Sept 4	2876	5.4	D	20 02.0	69	20 35.4	48
4	2880	5.1	D	21 30.2	60	22 06.4	46
Oct 7	3453	4.9	D	1 21.7	92	1 48.4	85
15	940	5.7	R	2 14.5	219	2 32.6	236
31	3166	4.8	D	22 51.1	4	Graze	-
Nov 11	894	4.6	R	0 25.3	277	0 34.3	290
17	1685	4.5	D	5 4.0	105	Sun	-
20	Mars	1.9	D	Low	-	4 17.2	77
20	Mars	1.9	R	5 19.4	293	5 4.8	320
30	3482	5.6	D	21 2.8	81	21 33.9	76
Dec 30	240	5.6	D	20 47.0	45	21 23.5	35

NOTES

N.O. = Star not occulted

Low = Star's altitude below 10°

THE PLANETS

The chart shows the S.A.S.T. of the rising and setting of the Sun and the 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, and just before sunrise in January/February and May/June. Its magnitude on these occasions will be +0.6, +0.1 and +0.8.

Venus will be a morning star in January, February and March; from April to December it will be an evening star. It reaches its maximum brightness of magnitude -4.4 at the end of December.

Mars is still a bright object in the evening sky and can be seen to the end of August. From October to December it can be found in the morning twilight. Its magnitude steadily decreases from +0.3 in January to +2.0 in July.

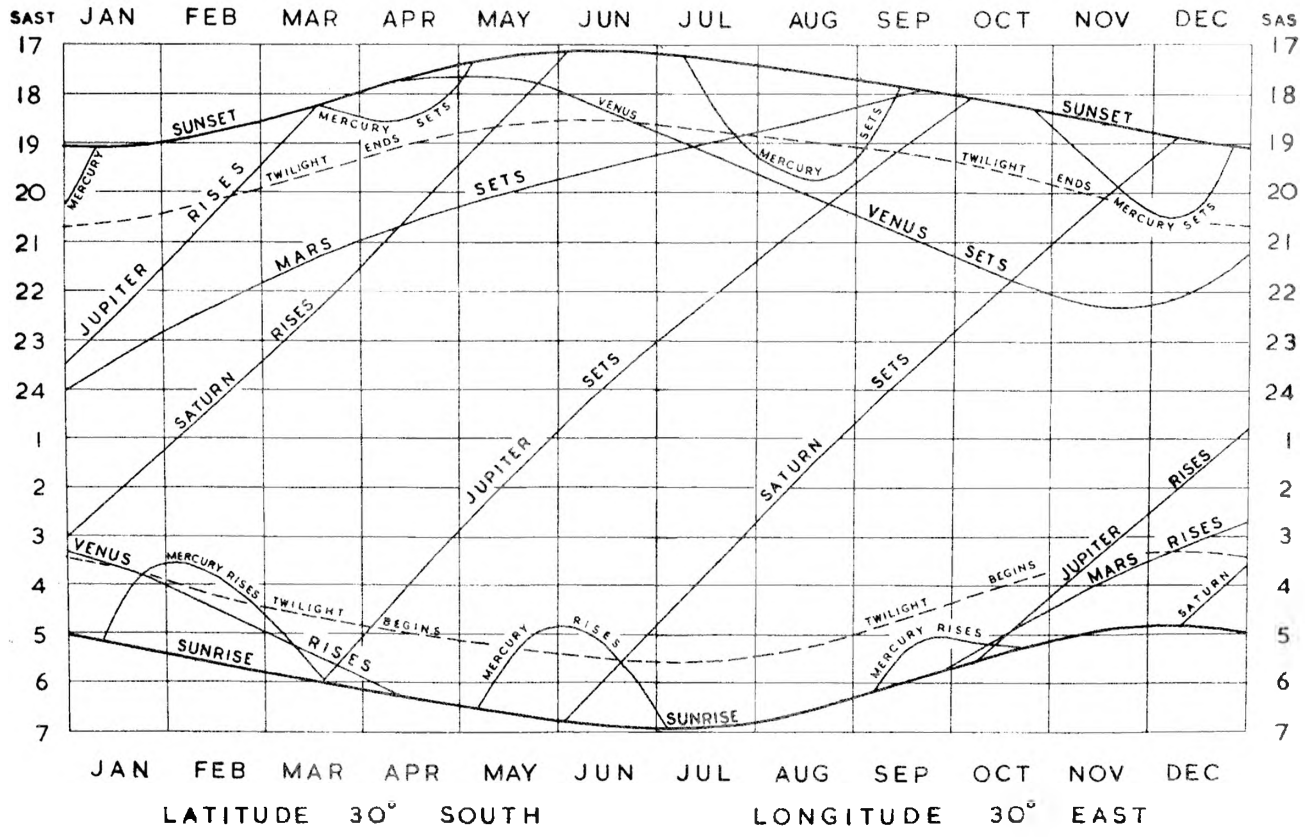
Jupiter rising before midnight in the beginning of the year, will be in opposition to the Sun in the middle of March and then remains a fine object in the evening sky until September. On 22nd August it will be close to Venus. In the latter half of October it will be visible in the morning twilight and will remain in the morning sky till the end of the year.

Saturn is visible in the morning sky during January, February and March, and during the whole night from April to June. It will be an evening object in October and November.

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 is most easily observed at the beginning of the year. It is in opposition on January 25. Neptune is in Virgo and is in opposition on April 21.

THE PLANETS AS SEEN FROM SOUTH AFRICA

1957



TABLES OF MOONRISE AND MOONSET FOR JOHANNESBURG AND CAPE TOWN

For places due east or west of Johannesburg or Cape Town the times of moonrise and moonset will be roughly one minute earlier for every fifteen miles east and one minute later for every fifteen miles west. Corrections to Johannesburg times for places in the neighbourhood are:-

-1^m	0^m	$+1^m$
Benoni	Germiston	Florida
Boksburg		Krugersdorp
Brakpan		Randfontein
Springs		Roodepoort
Pretoria		

For Port Elizabeth subtract 30 minutes from the times given for Cape Town.

Times of moonrise and moonset for other places in the Union may be obtained by adding $AX + B$ to the times given for Johannesburg, where X = Time of phenomenon at Cape Town - Time of phenomenon at Johannesburg. Typical values are:-

	A	B		A	B
Bloemfontein	+0.38	-7^m	Mossel Bay	+1.03	-16^m
Durban	+0.47	-31	Vereeniging	+0.06	- 2
East London	+0.88	-34			

Example: To find the time of moonset at East London on 1957 December 23

Moonset at Cape Town	$21^h\ 31^m$
Moonset at Johannesburg	20 40
X =	51

For East London, A = +0.88, B = -34^m. Hence the correction $AX + B = +11^m$.

Moonset at Johannesburg	20 40
AX + B	11
Moonset at East London	20 51

MOONRISE AND MOONSET

Date	JOHANNESBURG		CAPE TOWN	
1957	Moonrise S.A.S.T.	Moonset S.A.S.T.	Moonrise S.A.S.T.	Moonset S.A.S.T.
Jan 1	5h 33m	19h 16m	5h 57m	20h 10m
2	6 25	19 56	6 51	20 47
3	7 17	20 34	7 47	21 22
4	8 08	21 08	8 40	21 54
5	9 00	21 42	9 35	22 24
6	9 50	22 15	10 29	22 54
7	10 41	22 48	11 22	23 24
8	11 33	23 22	12 18	23 55
9	12 27	23 59	13 15	.....
10	13 22	.....	14 13	0 30
11	14 21	0 41	15 15	1 08
12	15 21	1 27	16 17	1 52
13	16 22	2 20	17 19	2 44
14	17 22	3 19	18 18	3 42
15	18 19	4 24	19 13	4 48
16	19 12	5 31	20 03	5 58
17	20 00	6 40	20 47	7 10
18	20 44	7 47	21 28	8 21
19	21 26	8 53	22 06	9 32
20	22 07	9 57	22 43	10 39
21	22 48	10 59	23 20	11 45
22	23 29	11 59	23 59	12 49
23	.....	12 58	.....	13 50
24	0 13	13 55	0 39	14 50
25	0 58	14 50	1 23	15 46
26	1 46	15 41	2 10	16 38
27	2 36	16 30	3 00	17 25
28	3 28	17 15	3 52	18 09
29	4 20	17 56	4 46	18 48
30	5 12	18 34	5 40	19 24
31	6 04	19 10	6 35	19 56

PHASES OF THE MOON

New Moon	Jan 1	4h	13m
First Quarter	9	9	06
Full Moon	16	8	21
Last Quarter	22	23	13
New Moon	30	23	24

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
Feb 1	$6^h\ 55^m$	$19^h\ 44^m$	$7^h\ 29^m$	$20^h\ 27^m$
2	7 46	20 17	8 23	20 57
3	8 36	20 49	9 16	21 27
4	9 28	21 23	10 11	21 57
5	10 20	21 59	11 06	22 30
6	11 13	22 38	12 04	23 06
7	12 09	23 21	13 02	23 46
8	13 06	.....	14 02	.....
9	14 05	0 09	15 02	0 33
10	15 04	1 02	16 00	1 26
11	16 00	2 02	16 56	2 26
12	16 55	3 07	17 48	3 32
13	17 45	4 14	18 34	4 42
14	18 32	5 22	19 18	5 54
15	19 16	6 30	19 59	7 06
16	19 59	7 36	20 37	8 16
17	20 42	8 42	21 16	9 26
18	21 25	9 45	21 56	10 33
19	22 10	10 47	22 37	11 38
20	22 56	11 46	23 21	12 40
21	23 43	12 43	.....	13 39
22	.....	13 37	0 07	14 33
23	0 33	14 27	0 57	15 22
24	1 25	15 13	1 49	16 08
25	2 16	15 55	2 41	16 48
26	3 08	16 35	3 35	17 25
27	4 00	17 11	4 30	17 58
28	4 51	17 46	5 23	18 30

PHASES OF THE MOON

First Quarter	Feb 8	1^h	23^m
Full Moon	14	18	38
Last Quarter	21	14	18

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
Mar 1	5h 42m	18h 19m	6h 18m	19h 00m
2	6 33	18 52	7 12	19 31
3	7 24	19 26	8 06	20 01
4	8 16	20 01	9 01	20 33
5	9 09	20 39	9 58	21 08
6	10 04	21 20	10 55	21 47
7	11 00	22 05	11 54	22 30
8	11 57	22 55	12 53	23 19
9	12 53	23 51	13 50	.....
10	13 49	.....	14 44	0 15
11	14 42	0 51	15 36	1 15
12	15 32	1 54	16 23	2 21
13	16 20	2 59	17 07	3 30
14	17 05	4 06	17 48	4 39
15	17 48	5 12	18 28	5 50
16	18 31	6 18	19 07	7 00
17	19 15	7 23	19 47	8 09
18	20 00	8 27	20 29	9 17
19	20 47	9 30	21 14	10 23
20	21 36	10 30	22 00	11 25
21	22 27	11 27	22 50	12 23
22	23 19	12 20	23 43	13 16
23	.....	13 08	.....	14 03
24	0 11	13 52	0 35	14 46
25	1 03	14 33	1 29	15 24
26	1 54	15 10	2 24	15 59
27	2 45	15 45	3 17	16 31
28	3 37	16 19	4 11	17 02
29	4 27	16 53	5 05	17 32
30	5 19	17 26	6 00	18 03
31	6 10	18 02	6 55	18 35

PHASES OF THE MOON

New Moon	Mar 1	18h	12m
First Quarter	9	13	50
Full Moon	16	4	22
Last Quarter	23	7	04
New Moon	31	11	19

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
Apr 1	7h 04m	18h 39m	7h 52m	19h 10m
2	7 58	19 20	8 49	19 47
3	8 55	20 04	9 48	20 30
4	9 51	20 53	10 47	21 17
5	10 48	21 46	11 45	22 10
6	11 43	22 43	12 39	23 08
7	12 36	23 44	13 30	.....
8	13 26	.....	14 18	0 11
9	14 13	0 47	15 02	1 15
10	14 57	1 50	15 42	2 23
11	15 40	2 54	16 21	3 30
12	16 22	3 59	16 59	4 39
13	17 05	5 03	17 39	5 46
14	17 49	6 06	18 19	6 54
15	18 35	7 10	19 03	8 01
16	19 24	8 12	19 50	9 06
17	20 15	9 12	20 39	10 08
18	21 08	10 08	21 32	11 04
19	22 01	10 59	22 26	11 55
20	22 55	11 46	23 20	12 41
21	23 47	12 29	.....	13 21
22	.....	13 08	0 15	13 58
23	0 38	13 44	1 10	14 30
24	1 29	14 18	2 03	15 02
25	2 20	14 52	2 57	15 32
26	3 11	15 26	3 51	16 03
27	4 03	16 00	4 46	16 34
28	4 56	16 37	5 42	17 09
29	5 51	17 17	6 41	17 46
30	6 48	18 00	7 39	18 27

PHASES OF THE MOON

First Quarter	Apr 7	22h	32m
Full Moon	14	14	09
Last Quarter	22	1	00
New Moon	30	1	54

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
May 1	7h 45m	18h 49m	8h 40m	19h 13m
2	8 43	19 42	9 39	20 06
3	9 39	20 39	10 35	21 03
4	10 33	21 38	11 28	22 04
5	11 24	22 40	12 17	23 08
6	12 10	23 43	13 00	.....
7	12 55	.....	13 41	0 14
8	13 37	0 45	14 20	1 20
9	14 18	1 48	14 57	2 26
10	14 59	2 50	15 35	3 32
11	15 42	3 52	16 13	4 38
12	16 26	4 54	16 55	5 43
13	17 13	5 56	17 39	6 49
14	18 03	6 58	18 27	7 51
15	18 55	7 54	19 19	8 50
16	19 49	8 48	20 13	9 44
17	20 43	9 38	21 08	10 33
18	21 37	10 23	22 04	11 16
19	22 29	11 04	23 00	11 55
20	23 21	11 42	23 53	12 29
21	.....	12 17	.....	13 02
22	0 12	12 51	0 48	13 32
23	1 02	13 24	1 41	14 03
24	1 54	13 58	2 35	14 33
25	2 46	14 33	3 31	15 06
26	3 39	15 11	4 28	15 42
27	4 35	15 54	5 26	16 21
28	5 33	16 40	6 27	17 06
29	6 32	17 33	7 27	17 56
30	7 30	18 30	8 26	18 53
31	8 26	19 30	9 22	19 55

PHASES OF THE MOON

First Quarter	May 7	4h	29m
Full Moon	14	0	34
Last Quarter	21	19	03
New Moon	29	13	39

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
June 1	9h 19m	20h 32m	10h 13m	21h 00m
2	10 09	21 36	11 00	22 06
3	10 55	22 39	11 42	23 13
4	11 37	23 41	12 21	.....
5	12 18	.....	12 59	0 19
6	12 59	0 42	13 36	1 24
7	13 40	1 44	14 12	2 29
8	14 22	2 45	14 52	3 33
9	15 07	3 46	15 34	4 37
10	15 55	4 45	16 20	5 39
11	16 45	5 43	17 09	6 39
12	17 38	6 38	18 02	7 35
13	18 32	7 30	18 57	8 25
14	19 27	8 17	19 53	9 11
15	20 20	9 00	20 49	9 51
16	21 12	9 39	21 44	10 28
17	22 03	10 16	22 38	11 02
18	22 54	10 50	23 32	11 33
19	23 44	11 23	.....	12 03
20	.....	11 56	0 25	12 33
21	0 36	12 31	1 20	13 04
22	1 28	13 07	2 15	13 38
23	2 22	13 47	3 12	14 15
24	3 19	14 31	4 11	14 57
25	4 16	15 20	5 11	15 44
26	5 15	16 15	6 11	16 39
27	6 14	17 15	7 10	17 41
28	7 09	18 18	8 04	18 45
29	8 02	19 24	8 55	19 52
30	8 51	20 29	9 39	21 01

PHASES OF THE MOON

First Quarter	June 5	9h	10m
Full Moon	12	12	02
Last Quarter	20	12	22
New Moon	27	22	53

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
July 1	9h 36m	21h 23m	10h 21m	22h 09m
2	10 18	22 36	11 00	23 16
3	10 59	23 38	11 37	.....
4	11 40	.....	12 15	0 21
5	12 22	0 39	12 53	1 27
6	13 06	1 39	13 34	2 30
7	13 52	2 39	14 18	3 32
8	14 41	3 36	15 05	4 32
9	15 32	4 32	15 56	5 28
10	16 25	5 24	16 49	6 20
11	17 19	6 12	17 44	7 07
12	18 12	6 57	18 40	7 49
13	19 05	7 37	19 35	8 28
14	19 56	8 14	20 29	9 02
15	20 47	8 50	21 24	9 34
16	21 38	9 23	22 17	10 04
17	22 28	9 56	23 10	10 35
18	23 19	10 30	.....	11 05
19	.....	11 05	0 04	11 38
20	0 11	11 42	1 00	12 12
21	1 05	12 23	1 57	12 50
22	2 02	13 09	2 55	13 34
23	2 59	14 00	3 55	14 24
24	3 57	14 57	4 53	15 21
25	4 54	15 58	5 49	16 23
26	5 48	17 03	6 42	17 31
27	6 40	18 10	7 31	18 41
28	7 28	19 17	8 15	19 51
29	8 13	20 22	8 57	21 01
30	8 56	21 27	9 36	22 09
31	9 39	22 31	10 15	23 17

PHASES OF THE MOON

First Quarter	July	4	14h	09m
Full Moon		12	0	50
Last Quarter		20	4	17
New Moon		27	6	28

MOONRISE AND MOONSET

Date	JOHANNESBURG		CAPE TOWN	
	Moonrise	Moonset	Moonrise	Moonset
1957	S.A.S.T.	S.A.S.T.	S.A.S.T.	S.A.S.T.
Aug 1	$10^h\ 22^m$	$23^h\ 33^m$	$10^h\ 54^m$	..... h m
2	11 05	.....	11 35	0 22
3	11 51	0 33	12 18	1 25
4	12 39	1 32	13 04	2 26
5	13 29	2 28	13 53	3 24
6	14 21	3 20	14 45	4 16
7	15 13	4 10	15 39	5 04
8	16 06	4 55	16 33	5 48
9	16 59	5 36	17 29	6 27
10	17 51	6 15	18 23	7 03
11	18 42	6 50	19 17	7 36
12	19 33	7 25	20 11	8 07
13	20 23	7 58	21 04	8 38
14	21 14	8 32	21 58	9 08
15	22 05	9 06	22 52	9 39
16	22 58	9 42	23 48	10 14
17	23 51	10 20	.....	10 49
18	.....	11 03	0 44	11 29
19	0 46	11 50	1 41	12 15
20	1 43	12 43	2 38	13 07
21	2 38	13 40	3 34	14 05
22	3 33	14 42	4 27	15 09
23	4 26	15 48	5 18	16 16
24	5 16	16 54	6 04	17 27
25	6 02	18 01	6 48	18 38
26	6 47	19 08	7 29	19 48
27	7 32	20 14	8 09	20 59
28	8 16	21 19	8 50	22 07
29	9 01	22 22	9 31	23 13
30	9 47	23 23	10 15	.....
31	10 35	.....	11 01	0 17

PHASES OF THE MOON

First Quarter	Aug 2	20^h	55^m
Full Moon	10	15	08
Last Quarter	18	18	16
New Moon	25	13	32

MOONRISE AND MOONSET

	JOHANNESBURG		CAPE TOWN	
Date 1957	Moonrise S.A.S.T.	Moonset S.A.S.T.	Moonrise S.A.S.T.	Moonset S.A.S.T.
Sept 1	11h 26m	0h 21m	11h 50m	1h 17m
2	12 18	1 16	12 42	2 12
3	13 10	2 07	13 35	3 02
4	14 03	2 54	14 29	3 47
5	14 56	3 36	15 24	4 27
6	15 48	4 15	16 19	5 05
7	16 38	4 52	17 12	5 38
8	17 29	5 26	18 06	6 10
9	18 19	6 00	18 59	6 40
10	19 10	6 33	19 53	7 11
11	20 01	7 07	20 46	7 42
12	20 52	7 43	21 42	8 15
13	21 46	8 21	22 38	8 50
14	22 40	9 02	23 33	9 28
15	23 34	9 47	.....	10 11
16	.....	10 36	0 29	11 00
17	0 29	11 29	1 24	11 54
18	1 22	12 28	2 17	12 52
19	2 14	13 29	3 07	13 57
20	3 03	14 33	3 53	15 04
21	3 50	15 38	4 37	16 13
22	4 36	16 45	5 19	17 23
23	5 20	17 51	6 00	18 33
24	6 05	18 58	6 41	19 44
25	6 51	20 03	7 22	20 53
26	7 38	21 08	8 06	22 00
27	8 27	22 09	8 53	23 04
28	9 18	23 07	9 43	.....
29	10 10	.....	10 35	0 03
30	11 04	0 01	11 29	0 56

PHASES OF THE MOON

First Quarter	Sept 1	6h	34m
Full Moon	9	6	55
Last Quarter	17	6	02
New Moon	23	21	18
First Quarter	30	19	49

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
Oct 1	11h 58m	0h 49m	12h 23m	1h 44m
2	12 51	1 34	13 19	2 26
3	13 43	2 14	14 13	3 05
4	14 34	2 52	15 07	3 39
5	15 24	3 27	16 01	4 12
6	16 15	4 01	16 54	4 42
7	17 06	4 35	17 47	5 13
8	17 56	5 09	18 41	5 44
9	18 49	5 44	19 37	6 17
10	19 42	6 21	20 33	6 51
11	20 35	7 01	21 28	7 29
12	21 30	7 45	22 25	8 11
13	22 24	8 33	23 19	8 58
14	23 17	9 25	.....	9 49
15	.....	10 20	0 12	10 45
16	0 08	11 19	1 01	11 46
17	0 57	12 20	1 48	12 49
18	1 42	13 22	2 31	13 55
19	2 27	14 26	3 12	15 02
20	3 10	15 30	3 52	16 10
21	3 54	16 35	4 31	17 19
22	4 38	17 41	5 12	18 28
23	5 24	18 46	5 55	19 37
24	6 13	19 50	6 41	20 44
25	7 04	20 51	7 30	21 46
26	7 58	21 48	8 23	22 44
27	8 53	22 41	9 17	23 36
28	9 48	23 28	10 13	.....
29	10 42	.....	11 09	0 22
30	11 35	0 11	12 05	1 02
31	12 27	0 50	12 59	1 38

PHASES OF THE MOON

Full Moon	Oct	8	23h 42m
Last Quarter		16	15 44
New Moon		23	6 43
First Quarter		30	12 48

MOONRISE AND MOONSET

Date	JOHANNESBURG		CAPE TOWN	
1957	Moonrise S.A.S.T.	Moonset S.A.S.T.	Moonrise S.A.S.T.	Moonset S.A.S.T.
	h m	h m	h m	h m
Nov 1	13 19	1 26	13 53	2 12
2	14 09	2 01	14 47	2 43
3	14 59	2 35	15 40	3 14
4	15 50	3 09	16 34	3 45
5	16 42	3 43	17 29	4 16
6	17 35	4 20	18 25	4 51
7	18 30	5 00	19 22	5 28
8	19 25	5 42	20 19	6 09
9	20 20	6 30	21 15	6 54
10	21 14	7 21	22 09	7 45
11	22 05	8 16	22 59	8 41
12	22 54	9 14	23 47	9 40
13	23 40	10 13	.....	10 42
14	.....	11 14	0 30	11 46
15	0 24	12 15	1 11	12 50
16	1 07	13 18	1 50	13 56
17	1 48	14 20	2 27	15 02
18	2 30	15 23	3 06	16 09
19	3 15	16 26	3 46	17 16
20	4 01	17 30	4 30	18 23
21	4 50	18 33	5 17	19 28
22	5 42	19 33	6 08	20 28
23	6 37	20 28	7 02	21 23
24	7 33	21 19	7 58	22 13
25	8 29	22 05	8 56	22 57
26	9 24	22 46	9 53	23 36
27	10 18	23 24	10 49	.....
28	11 10	.....	11 44	0 11
29	12 01	0 00	12 38	0 43
30	12 51	0 34	13 30	1 14

PHASES OF THE MOON

Full Moon	Nov 7	16h	32m
Last Quarter	14	23	59
New Moon	21	18	19
First Quarter	29	8	57

MOONRISE AND MOONSET

Date 1957	JOHANNESBURG Moonrise S.A.S.T.	JOHANNESBURG Moonset S.A.S.T.	CAPE TOWN Moonrise S.A.S.T.	CAPE TOWN Moonset S.A.S.T.
Dec 1	13h 41m	1h 07m	14h 24m	1h 45m
2	14 33	1 41	15 18	2 16
3	15 25	2 16	16 14	2 48
4	16 19	2 55	17 11	3 24
5	17 14	3 36	18 08	4 04
6	18 10	4 22	19 05	4 48
7	19 06	5 13	20 01	5 37
8	20 00	6 08	20 55	6 32
9	20 52	7 06	21 45	7 31
10	21 39	8 07	22 30	8 34
11	22 25	9 07	23 12	9 38
12	23 08	10 09	23 52	10 44
13	23 48	11 11	.....	11 48
14	.....	12 12	0 29	12 54
15	0 30	13 14	1 07	13 58
16	1 12	14 16	1 45	15 04
17	1 56	15 18	2 26	16 08
18	2 42	16 19	3 10	17 12
19	3 31	17 18	3 57	18 14
20	4 24	18 15	4 49	19 11
21	5 19	19 09	5 44	20 03
22	6 16	19 57	6 41	20 50
23	7 11	20 40	7 39	21 31
24	8 06	21 21	8 36	22 08
25	9 00	21 57	9 32	22 42
26	9 52	22 32	10 27	23 14
27	10 42	23 06	11 21	23 45
28	11 32	23 40	12 14	.....
29	12 23	.....	13 08	0 16
30	13 14	0 14	14 01	0 47
31	14 07	0 50	14 57	1 21

PHASES OF THE MOON

Full Moon	Dec 7	8h 16m
Last Quarter	14	7 45
New Moon	21	8 12
First Quarter	29	6 52

METEOR CALENDAR 1957

Date	Shower	Radiant	Maximum		
			Date	Hourly Rate	Transit of Radiant
Jan 3	Quadrantids	227° + 46°	Jan 3	40	08h 30m
Mar 12 -Apr 25	Hydraids	184 - 27	Mar 25	?	00 00
Mar 1 -May 10	Virginids	200 - 6	Apr 3	?	00 00
Apr 2 -Apr 24	Lyrids	273 + 35	Apr 21	12	04 00
Apr 29 -May 21	Eta Aquarids	338 - 1	May 6	10	07 36
Apr 20 -Jul 30	Sco-Sgr. System	270 - 30	Jun 14	?	00 30
Jul 25 -Aug 10	Delta Aquarids	343 - 17	Jul 28	20	02 00
Jul 18 -Jul 30	Alpha Capricornids	304 - 12	?	?	-- --
Jul 20 -Aug 19	Perseids	43 + 56	Aug 12	50	05 36
Aug 16 -Oct 8	Piscids	0 + 4	Sept 12	?	00 30
Oct 11 -Oct 30	Orionids	94 + 16	Oct 22	20	04 24
Sep 24 -Dec 10	Taurids	58 + 21	Nov 13	6	00 36
Nov 16	Leonids	151 + 21	Nov 16	6	06 30
Dec 5 -Dec 12	Geminids	113 + 30	Dec 12	30	02 00
Dec 5 -Jan 7	Velaids	149 - 51	Dec 29	?	03 30

The hourly rates quoted would apply if the radiants were in the oberserver zenith. The orbits of the cometary currents are closely related to the orbits of the comets named: the orbits of ecliptical currents to those of certain minor planets.

METEOR CALENDAR 1957

Recommended SAST of watch near maximum	Conditions at maximum	Nature of current
Difficult to observe in S.A.	-------	Unknown
22h - 24 h	Favourable - no Moon	Unknown
22h - 24h	Favourable - no Moon	Ecliptical
02h - 04h	Unfavourable	Cometary: Comet 1861 I
03h to dawn	Favourable - no Moon	Cometary: Halley
20h - 24h	Unfavourable	Ecliptical
23h - 02h	Favourable - no Moon	Ecliptical
22h - 02h	Favourable	Unknown
03h to dawn	Unfavourable. Only observable in far north: hourly rate very low.	Cometary: Comet 1862 III
22h - 24h	Unfavourable	Ecliptical
02h30m - 04h30m	Favourable - no Moon	Cometary: Halley
22h - 24h	Favourable - no Moon	Ecliptical
03h to dawn	Unfavourable	Cometary: Comet 1866 I
23h - 02h	Unfavourable	Ecliptical
23h - 03h30m	Favourable - moon first quarter	Unknown

ASTRONOMICAL DIARY

JANUARY 1957

Mercury is visible towards the end of the month in the morning sky. Venus is a morning star. Mars sets before midnight. Jupiter rises two hours before, and Saturn two hours after midnight.

	d.	h.	
Jan	1	08	Mercury at a Stationary Point.
	2	16	Mercury in Conjunction with the Moon, Mercury 4° S.
	3	08	Earth in Perihelion, distance 0.983 astronomical units.
	9	11	Mars in Conjunction with the Moon, Mars 3° S.
	10	17	Mercury in Inferior Conjunction with the Sun.
	17	02	Jupiter at a Stationary Point.
	20	22	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	21	18	Mercury in Conjunction with Venus, Mercury 2°.8 N.
	21	20	Mercury at a Stationary Point.
	25	06	Uranus in Opposition.
	26	02	Saturn in Conjunction with the Moon, Saturn 0°.4 N.
	28	18	Mercury in Conjunction with the Moon, Mercury 2° S.
	29	08	Venus in Conjunction with the Moon, Venus 4° S.

FEBRUARY 1957

Mercury is still visible in the morning sky. Venus rises in the morning twilight. Mars in the evening sky sets one hour before midnight. Jupiter rises three hours before midnight and Saturn about midnight.

	d.	h.	
Feb	2	21	Mercury at Greatest Elongation, 25° W.
	3	10	Neptune at at Stationary Point.
	7	01	Mars in Conjunction with the Moon, Mars 0°.8 S.
	17	05	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	18	05	Pluto in Oppostion.
	22	11	Saturn in Conjunction with the Moon, Saturn 0°.02 N.
	28	12	Mercury in Conjunction with the Moon, Mercury 7° S.
	28	23	Venus in Conjunction with the Moon, Venus 7° S.

MARCH 1957

Mars sets late in the evening. Jupiter rises at sunset and is visible throughout the night. Saturn rises about one hour before midnight.

	d.	h.	
Mar	7	15	Mars in Conjunction with the Moon, Mars 1° N.
	10	15	Mercury in Conjunction with Venus, Mercury 0°.8 S.
	16	11	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	17	20	Jupiter in Opposition.
	18	02	Spica occulted by the Moon.
	20	20	Mercury in Superior Conjunction with the Sun.
	20	23	Equinox.
	21	20	Saturn in Conjunction with the Moon, Saturn 0°.2 S.
	24	06	Saturn at a Stationary point.
	31	08	Venus in Conjunction with the Moon, Venus 5° S.

APRIL 1957

Mars sets as Saturn rises in the mid evening. Jupiter sets before dawn.

	d.	h.	
Apr	1	14	Mercury in Conjunction with the Moon, Mercury 2° S.
	3	05	Mars in Conjunction with Aldebaran, Mars 6°.8 N.
	5	06	Mars in Conunction with the Moon, Mars 3° N.
	10	13	Uranus at a Stationary Point.
	12	16	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	14	15	Venus in Superior Conjunction with the Sun.
	15	11	Mercury at Greatest Elongation, 20° E.
	18	05	Saturn in Conjunction with the Moon, Saturn 0°.3 S.
	21	17	Neptune in Opposition.
	25	17	Mercury at a Stationary Point.
	30		Annular Eclipse of the Sun, not visible in South Africa.
	30	11	Venus in Conjunction with the Moon, Venus 1° S.
	30	17	Mercury in Conjunction with the Moon, Mercury 2° N.

MAY 1957

Towards the end of the month Mercury can be seen in the morning sky. Mars sets two hours after the Sun, Jupiter two hours after midnight. Saturn rises just after evening twilight ends.

	d.	h.	
May	2	18	Mercury in Conjunction with Venus, Mercury 2° N.
	3	20	Mars in Conjunction with the Moon, Mars 5° N.
	6		Transit of Mercury over the Sun, not visible from South Africa.
	6	02	Mercury in Inferior Conjunction with the Sun.
	9	21	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	11	21	Spica occulted by the Moon.
	13		Total Eclipse of the Moon.
	15	11	Saturn in Conjunction with the Moon, Saturn 0°.2 S.
	18	09	Mercury at a Stationary Point.
	19	18	Jupiter at a Stationary Point.
	21	17	Venus in Conjunction with Aldebaran, Venus 5°.7 N.
	27	19	Mercury in Conjunction with the Moon, Mercury 4° S.
	30	12	Venus in Conjunction with the Moon, Venus 3° N.

JUNE 1957

Mercury can be seen in the morning sky. Venus sets in the evening twilight. Mars sets about two hours after the Sun, Jupiter about midnight. Saturn is visible throughout the night.

	d.	h.	
June	1	11	Mars in Conjunction with the Moon, Mars 6° N.
	1	21	Saturn in Opposition.
	2	01	Mercury at Greatest Elongation, 24° W.
	6	03	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	11	08	Mars in Conjunction with Pollux, Mars 5°.5 S.
	11	16	Saturn in Conjunction with the Moon, Saturn 0° S.
	18	15	Mercury in Conjunction with Aldebaran, Mercury 4°.2 N.
	21	18	Solstice.
	26	06	Venus in Conjunction with Pollux, Venus 5°.4 S.

	d.	h.	
June	27	06	Mercury in Conjunction with the Moon, Mercury 3° N.
	29	13	Venus in Conjunction with the Moon, Venus, 6° N.
	30	01	Mars in Conjunction with Uranus, Mars 0°.7 N.
	30	02	Mars in Conjunction with the Moon, Mars 6° N.

JULY 1957

Venus in an evening star. Mars sets just after twilight ends. Jupiter in the evening sky sets about two hours before midnight, Saturn about three hours after midnight.

	d.	h.	
July	3	03	Earth in Aphelion.
	3	12	Jupiter in Conjunction with the Moon, Jupiter 6° N.
	4	07	Mercury in Superior Conjunction with the Sun.
	6	02	Venus in Conjunction with Uranus, Venus 1°.0 N.
	8	19	Saturn occulted by the Moon.
	11	21	Venus in Conjunction with Mars, Venus 0°.4 N.
	12	12	Neptune at a Stationary Point.
	16	00	Mercury in Conjunction with Uranus, Mercury 1°.2 N.
	18	05	Saturn in Conjunction with Antares, Saturn 6°.4 N.
	24	00	Mercury in Conjunction with Mars, Mercury 0°.1 N.
	25	06	Venus in Conjunction with Regulus, Venus 1°.2 N.
	28	17	Mars in Conjunction with the Moon, Mars 6° N.
	29	01	Mercury in Conjunction with the Moon, Mercury 6° N.
	29	10	Venus in Conjunction with the Moon, Venus 7° N.
	29	15	Mercury in Conjunction with Regulus, Mercury 0°.2 N.
	31	02	Jupiter in Conjunction with the Moon, Jupiter 5° N.
	30	20	Uranus in Conjunction with the Sun.
	31	02	Jupiter in Conjunction with the Moon, Jupiter 5° N.

AUGUST 1957

Mercury is in the evening sky and at Greatest Elongation should be seen with ease. Venus is also an evening star. Jupiter sets about three hours after the Sun, and will be close to Venus on the 22nd. Saturn sets about an hour after midnight.

	d.	h.	
Aug	4	23	Saturn in Conjunction with the Moon, Saturn 0°.2 S
	6	17	Mars in Conjunction with Regulus, Mars 0°.7 N.
	12	10	Saturn at a Stationary Point.
	13	17	Mercury at Greatest Elongation, 27° E.
	22	17	Venus in Conjunction with Jupiter, Venus 0°.5 S.
	23	16	Pluto in Conjunction with the Sun.
	26	08	Mars in Conjunction with the Moon, Mars 6° N.
	26	21	Mercury at a Stationary Point.
	27	02	Mercury in Conjunction with the Moon, Mercury 0°.3 S.
	27	19	Jupiter in Conjunction with the Moon, Jupiter 5° N.
	28	03	Venus in Conjunction with the Moon, Venus 3° N.

SEPTEMBER 1957

Venus is a conspicuous object in the evening sky. Jupiter sets in the evening twilight. Saturn is visible in the evening sky and sets at midnight.

	d.	h.	
Sept	1	06	Saturn in Conjunction with the Moon, Saturn 0°.6 S.
	6	04	Mercury in Conjunction with Mars, Mercury 6° S.
	6	08	Saturn in Conjunction with Antares, Saturn 6°.2 N.
	8	00	Venus in Conjunction with Spica, Venus 2°.1 N.
	9	22	Mercury in Inferior Conjunction with the Sun.
	15	21	Venus in Conjunction with Neptune, Venus 2°.5 S.
	18	10	Mercury at a Stationary Point.
	21	17	Mars in Conjunction with the Sun.
	22	20	Mercury in Conjunction with the Moon, Mercury 5° N.
	23	09	Equinox.
	23	23	Mars in Conjunction with the Moon, Mars 5° N.
	24	14	Jupiter in Conjunction with the Moon, Jupiter 4° N.
	25	21	Mercury at Greatest Elongation, 18° W.
	26	20	Venus in Conjunction with the Moon, Venus 2° S.
	28	16	Saturn in Conjunction with the Moon, Saturn 1° S.

OCTOBER 1957

Venus dominates the evening sky. Mars and Jupiter rise just before dawn. Saturn sets about two hours before midnight.

	d.	h.	
Oct	5	18	Jupiter in Conjunction with the Sun.
	13	13	Mercury in Conjunction with Mars, Mercury 1°.0 N.
	14	12	Mercury in Conjunction with Jupiter, Mercury 0°.5 N.
	16	20	Mars in Conjunction with Jupiter, Mars 0°.4 S.
	17	22	Venus in Conjunction with Antares, Venus 2°.1 N.
	20	14	Venus in Conjunction with Saturn, Venus 4°.1 S.
	22	11	Jupiter in Conjunction with the Moon, Jupiter 3° N.
	22	15	Mars in Conjunction with the Moon, Mars 3° N.
	23		Total Eclipse of the Sun.
	23	07	Mercury in Conjunction with the Moon, Mercury 2° N.
	24	05	Mercury in Superior Conjunction with the Sun.
	25	15	Mercury in Conjunction with Neptune, Mercury 1°.3 S.
	26	03	Neptune in Conjunction with the Sun.
	26	06	Saturn in Conjunction with the Moon, Saturn 1° S.
	26	17	Venus in Conjunction with the Moon, Venus 6° S.
	28	04	Mars in Conjunction with Spica, Mars 2°.9 N.

NOVEMBER 1957

Venus increasing in brilliancy is in the evening sky. Mars and Jupiter rise in the morning twilight. Saturn sets in the evening twilight.

	d.	h.	
Nov	7		Total Eclipse of the Moon, not visible from South Africa.
	14	03	Mars in Conjunction with Neptune, Mars 1°.2 S.
	17	14	Uranus at a Stationary Point.
	17	15	Mercury in Conjunction with Antares, Mercury 2°.7 N.
	18	09	Venus at Greatest Elongation 47° E.
	19	05	Jupiter in Conjunction with the Moon, Jupiter 3° N.
	20	06	Mars occulted by the Moon.
	21	19	Jupiter in Conjunction with Spica, Jupiter 3°.4 N.
	21	23	Mercury in Conjunction with Saturn, Mercury 3°.6 S.
	22	21	Saturn in Conjunction with the Moon, Saturn 2° S.
	23	00	Mercury in Conjunction with the Moon, Mercury 5° S.
	25	16	Venus in Conjunction with the Moon, Venus 8° S.

DECEMBER 1957

Mercury sets as evening twilight ends. Venus in the evening sky reaches greatest brilliancy. Mars rises about two hours before the Sun, Jupiter about two hours after midnight.

	d.	h.	
Dec	8	02	Mercury at Greatest Elongation, 21° E.
	9	05	Saturn in Conjunction.
	16	10	Mercury at a Stationary Point.
	16	20	Jupiter in Conjunction with the Moon, Jupiter 2° N.
	18	23	Mars in Conjunction with the Moon, Mars 1° S.
	20	12	Saturn in Conjunction with the Moon, Saturn 2° S.
	22	02	Mercury in Conjunction with the Moon, Mercury 3° S.
	22	05	Solstice.
	24	06	Venus at Greatest brilliancy.
	24	20	Venus in Conjunction with the Moon, Venus 6° S.
	25	22	Mercury in Inferior Conjunction with the Sun.

THE GILL MEDAL

In 1956 the Society established a Silver Medal, to be known as the Gill Medal (see frontispiece), to be awarded for services to astronomy, more especially to astronomy in Southern Africa. The medal commemorates Sir David Gill, some time H.M. Astronomer at the Cape, known for his instrumental work in the design of the transit circle and his part in the introduction of photography to astronomy. His determination of the parallaxes of the Sun and other bodies is a scientific classic, and his favourite instrument was the heliometer depicted on the reverse of the medal.

The first award was to Dr Harold Knox-Shaw, some time Radcliffe Observer, for his vision and determination in transferring the Radcliffe Observatory to Pretoria, and its equipment with the 74-inch reflector, largest telescope in the Southern Hemisphere.

BRIGHT VARIABLE STARS

Name	Position (1950) R.A. h.	m.	Dec. °	'	Range	Period d.	Expected Maxima 1957
o Ceti (Mira)	02	17	- 3	15	3.4-9.2	331	Oct 18
R Doradus	04	36	-60	10	5.8-6.6	Irr.	?
R Pictoris	04	45	-49	20	6.5-10	Irr. (160?)	?
L_2 Puppis	07	12	-44	34	3.1-6.3	140?	Jan 23, June 13, Nov 1
R Carinae	09	31	-62	34	4.0-10	309	Sep 24
S Carinae	10	08	-61	18	5.4-9.5	149	May 8, Oct 4,
R Hydrae	13	27	-23	01	4.2-9.5	402	Dec 10
T Centauri	13	39	-33	21	6.1-8.0	91	Feb 26, May 27, Aug 25, Nov 23
R Centauri	14	13	-59	41	5.8-12	551	No Maximum
R Aquarii	23	41	-15	34	6.4-10.3	387	Dec 18

ACKNOWLEDGEMENTS

The Handbook of the Astronomical Society of Southern Africa appears this year in a new format uniform with that of M.N.A.S.S.A. from 1957 Jan 1. The material has been prepared by the Transvaal Centre Branch of the Computing Section, save for the data on Bright Variable Stars which have been provided by Mr R.P. de Kock. The Handbook has been edited and produced at the Cape.

OBSERVING SECTIONS

The Observing Sections exist to encourage amateurs in carrying out useful research. Enquiries about their activities should be addressed to the Directors of the Observing Sections, 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, Astronomical Society of S.A., Union Observatory, Johannesburg.

A number of autonomous local Centres of the Society exists, which hold regular meetings. Details of Centre organisation are as follows:—

CAPE CENTRE

Chairman: Mr. W. P. Hirst.
Vice-Chairman: Mr. O. H. Chilton.
Hon. Secretary: Mr. R. J. Johnston.
Hon. Treasurer: Mr. H. E. Krumm.
Hon. Auditor: Mr. A. Menzies.
Committee: Prof. G. H. Menzies, Dr. A. W. J. Cousins, Mr. R. B. Borcherds, Mr. R. P. De Kock, Mr. J. F. R. Linton.
Meetings in winter on 2nd Wednesday of month at the Royal Observatory.

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Chairman: Mr. J. H. Botham.
Vice-Chairman: Mr. J. A. Bruwer.
Hon. Secretary: Mr. I. R. H. Brickett, (Assistant Secretary, Mrs. P. Perry, Pretoria).
Hon. Treasurer: Mr. G. F. G. Knipe.
Committee: Mr. S. C. Venter, Mr. M. D. Overbeek, Mr. M. W. Feast, Dr. C. N. Williams, Mr. H. C. Lagerweij.
Pretoria Representative: Mr. J. L. Jooste, (495, Prinsloo Street).
Observing and lecture meetings in alternate months. Secretarial address, c/o Union Observatory, Johannesburg.

PORT ELIZABETH CENTRE

Chairman: Mr. J. C. Bentley.
Vice-Chairman: Prof. N. M. S. Immelman.
Hon. Secretary: Mr. W. L. Schlesinger.
Hon. Treasurer: Mr. E. F. Jansen.
Committee: Mr. H. Welsh, Mr. A. A. Foster, Mr. E. Warring, Mr. C. Anderson, Mr. H. Smith, Mr. B. Simpson, Mr. E. Bignaut, Mr. F. De Lange.
Meetings on last Thursday of each month. Secretarial address, 120a, Princes Street. Port Elizabeth.

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Vice-Chairman: Mr. de Palo.
Hon. Secretary: Mr. B. Ryan.
Hon. Treasurer: Mr. D. Harpur.
Committee: Mr. J. Barker, Dr. Peter Le Roux, Mr. G. Pollard.
Secretarial address: 455, West Street, Durban.

CALENDAR for 1957

JANUARY						
S	M	T	W	Th	F	S
-	-	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	-	-

FEBRUARY						
S	M	T	W	Th	F	S
-	-	-	-	-	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	28	29	20	21	22	23
24	25	26	27	28	-	-

MARCH						
S	M	T	W	Th	F	S
31	-	-	-	-	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

APRIL						
S	M	T	W	Th	F	S
-	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	-	-	-	-

MAY						
S	M	T	W	Th	F	S
-	-	-	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	-

JUNE						
S	M	T	W	Th	F	S
30	-	-	-	-	-	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

JULY						
S	M	T	W	Th	F	S
-	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	-	-	-

AUGUST						
S	M	T	W	Th	F	S
-	-	-	-	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER						
S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	-	-	-	-	-

OCTOBER						
S	M	T	W	Th	F	S
-	-	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	-	-

NOVEMBER						
S	M	T	W	Th	F	S
-	-	-	-	-	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER						
S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	-	-	-	-

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.
Nominations for Officers & Council by	June 15.
Subscriptions due	July 1.
Annual General Meeting at all Centres	4th Wednesday in July.

Peninsula Press Ltd. 8006