

- 5 definition varies between 1 and 4, Mimas faint, ρ uncertain.
 6 definition varies between 2 and 4, somewhat uncertain.
 7 Shortly before occultation by the moon, Mimas faint, no artificial illumination, uncertain.

Mimas — Dione.

		h	m	°	"			
March	7 ^o 09441	— 1	21	104 ^o 71	28 ["] 66	12,8	3	+
April	27 ^o 86427	— 3	24	88 ^o 72	29 ["] 52	12,10	2	+
	27 ^o 95769	— 1	10	84 ^o 19	27 ["] 43	12,9	2	+
	30 ^o 93103	— 1	35	90 ^o 22	35 ["] 95	12,14	4	1
July	2 ^o 89572	+ 2	00	118 ^o 26	27 ["] 57	8,8	4	+
Aug.	3 ^o 82222	+ 2	24	126 ^o 92	23 ["] 83	12,14	5	3

- Notes: 1 driving clock very bad, wholly unreliable.
 2 θ with slow motion.
 3 hazy, Mimas faint, uncertain.

Enceladus — Tethys.

		h	m	°	"			
March	2 ^o 97714	— 4	26	349 ^o 25	4 ["] 62	12,8	2	+
	7 ^o 04538	— 2	32	74 ^o 18	40 ["] 37	12,8	3	
	7 ^o 99574	— 3	40	254 ^o 54	9 ["] 86	12,8	2	+
April	1 ^o 99030	— 2	08	292 ^o 30	8 ["] 69	12,8	2	1
	7 ^o 93067	— 3	11	276 ^o 78	37 ["] 57	12,12	3	
	8 ^o 04141	— 0	30	288 ^o 62	36 ["] 92	10,8	4	
	23 ^o 00368	— 0	23	275 ^o 58	41 ["] 68	8,8	4	+
	26 ^o 89183	— 2	48	61 ^o 41	9 ["] 95	12,8	2	2
	27 ^o 88779	— 2	50	110 ^o 38	31 ["] 25	8,9	3	+
June	30 ^o 90383	+ 2	04	214 ^o 89	6 ["] 23	8,8	4	+
July	2 ^o 75400	— 1	24	103 ^o 67	63 ["] 35	8,10	4	3
	2 ^o 91733	+ 2	32	130 ^o 36	44 ["] 19	8,9	4	+
	3 ^o 95557	+ 3	31	46 ^o 52	42 ["] 52	8,10	4	
	6 ^o 89854	+ 2	21	146 ^o 27	19 ["] 70	12,10	1	+
	13 ^o 83586	+ 1	20	97 ^o 87	76 ["] 52	12,12	2	3
	14 ^o 72853	— 1	11	286 ^o 09	53 ["] 47	12,8	4	3
	29 ^o 84135	+ 2	30	289 ^o 51	46 ["] 91	12,12	1	+
	31 ^o 80059	+ 1	42	252 ^o 25	27 ["] 48	12,12	4	+
Aug.	3 ^o 83826	+ 2	48	182 ^o 12	22 ["] 81	12,8	5	
	4 ^o 78676	+ 1	37	31 ^o 02	7 ["] 72	12,8	2	+
Sept.	3 ^o 80463	+ 3	59	305 ^o 36	10 ["] 51	12,8	3	5
	5 ^o 78191	+ 3	34	275 ^o 31	63 ["] 58	13,12	1	+
	9 ^o 77214	+ 3	34	282 ^o 07	29 ["] 48	12,8	4	
	14 ^o 74745	+ 3	17	141 ^o 42	16 ["] 48	12,8	2	+
	28 ^o 73720	+ 3	53	72 ^o 05	13 ["] 69	12,12	2	4

- Notes: 1 wholly unreliable, hampered by clouds, driving clock bad.
 2 driving clock bad, θ with slow motion.
 3 θ with slow motion.
 4 unreliable.
 5 shortly after occultation by the moon, no artificial illumination.

Tethys — Rhea.

		h	m	°	"			
March	3 ^o 00663	— 3	43	173 ^o 97	44 ["] 27	12,8	3	+
	7 ^o 06993	— 2	04	164 ^o 82	50 ["] 59	12,8	3	+
April	7 ^o 99950	— 1	31	176 ^o 32	51 ["] 77	12,9	2	1
	23 ^o 01757	— 0	03	277 ^o 20	43 ["] 49	10,8	4	
	23 ^o 90922	— 2	35	350 ^o 00	48 ["] 41	12,10	1	+
	26 ^o 91596	— 2	13	251 ^o 17	75 ["] 23	12,13	2	+
	27 ^o 91944	— 2	04	329 ^o 55	60 ["] 29	12,12	2	+
June	30 ^o 91946	+ 2	27	36 ^o 66	51 ["] 35	12,9	4	+
July	2 ^o 77274	— 0	57	243 ^o 98	37 ["] 69	10,8	4	+
	2 ^o 93275	+ 2	54	248 ^o 04	31 ["] 00	8,8	4	+
	3 ^o 97493	+ 3	59	265 ^o 85	89 ["] 49	8,12	3	1
	18 ^o 76402	— 0	05	75 ^o 74	60 ["] 77	12,12	2	
	19 ^o 73314	— 0	44	82 ^o 67	49 ["] 92	12,12	2	+
	31 ^o 81669	+ 2	05	34 ^o 84	31 ["] 50	12,8	4	+
Aug.	3 ^o 80103	+ 1	54	263 ^o 52	79 ["] 19	12,12	5	1
	4 ^o 77472	+ 1	20	274 ^o 86	40 ["] 22	12,12	3	
Sept.	2 ^o 75652	+ 2	46	92 ^o 56	31 ["] 71	12,8	5	
	28 ^o 75287	+ 4	16	337 ^o 47	14 ["] 44	8,9	1	+

- Notes: 1 θ with slow motion.
 2 driving clock bad, θ with slow motion
 3 uncertain.

Occultation of Saturn by the moon, 1927 September 3.

		h	m	s	to		
DD	Titan	17	6	19 ^s 6	to	22 ^m 1	(Gr. M. Civil T.)
DD	Rhea	11	6	8	to	7 ^m 8	
DD	Dione	14	30	3	to	31 ^m 3	
DD	Tethys	15	25	6	to	26 ^m 6	
DD	ring	16	23	5			(last speck)
RB	Cass. division	46	31	9			(prec. side)
RB	Cass. division	49	35	4			(foll. side)
RB	ring	49	49	4			(last contact)

Observations of the transit of Mercury of November 10, 1927,
 made at the *Observatory at Leiden*.

The transit was observed on the image of the sun on screens at the 10-inch and 6-inch telescopes by several observers, and directly through a solar eye piece at the 4-inch finder of the Zeiss double camera, by Mr. N. W. DOORN. The sun was too low to be visible from the dome of the photographic refractor.

The clouds which covered the sun cleared away

about ten minutes before the egress. The solar limb was boiling furiously. Mr. SANDERS at the 6-inch estimated the interior contact of Mercury with a circumference corresponding to the inner limit of the boiling limb to have taken place at 8^h27^m5^s (Grw. mean civil time). Mr. VAN GENT, at the same telescope, observed the third contact at 8^h27^m25^s. Mr. W. DE

SITTER, also at the 6-inch, had not observed the contact, but estimated that it would happen in a very few seconds, when the sun was covered by clouds again at $8^{\text{h}}27^{\text{m}}31^{\text{s}}$. At the 10-inch telescope all observers agreed that the contact had not taken place, when the sun was covered by clouds. Mr. DOORN observed the third contact at $8^{\text{h}}27^{\text{m}}44^{\text{s}}$, the sun being at that time only just visible through the heavy cloud.

The predicted time of third contact, according to the *N. A.*, is for Leiden $8^{\text{h}}28^{\text{m}}22^{\text{s}}.5$. Mr. DOORN's observation (which is, however, subject to considerable uncertainty) thus gives a correction to the predicted time of -39^{s} .

From the formulas of *B. A. N.* 127 I find

$$(A) = -22^{\text{s}}.4, (B) = -0^{\text{s}}.5, (B)_0 = +7^{\text{s}}.8,$$

from which

$$\begin{aligned}\Delta L' &= +1''.30 \\ \Delta \lambda_r &= +5'.71 \\ \Delta V &= -0'.67\end{aligned}$$

The correction to the tabular difference of the heliocentric longitudes of Mercury and the earth therefore becomes $+6''.50$, which gives a correction to the predicted time of $-29^{\text{s}}.8$.

The deviation of Mr. DOORN's observation from the formulas of *B. A. N.* 127 and 124 is therefore -9^{s} .