1882 Gr. m. t.			1882 Gr. m. t.			1882 Gr. m. t.			1882 Gr. m. t.			1882 Gr. m. t.			1882 Gr. m. t.		
Jan. 30	6h 1	Di.*n*	Febr. 3	21h 5	Te.*s*	Febr. 9	6h 4	En.*s*	Febr. 15	5h 4	Te.*s*	Febr. 21	20h 1	Te.*n*	Febr. 28	10h 7	Te.*s*
	6.8	Mi.*n*	4	11.3	En.*n*		13.5	Te.*s*		16.4	Di.*n*		22 12.7	Di.*s*	Mar. 1	9.0	Di.*n*
31	2.8	Te.*s*		17.5	Di.*n*		21.5	Rh.*s*	16	4.1	Te.*n*		18.8	Te.*s*		9.4	Te.*n*
	5.4	Mi.*n*		20.1	Te.*n*	10	4.9	Di.*n*		16.3	Rh.*n*	23	11.1	Rh.*s*	2	5.9	Rh.*n*
	8.6	En.*n*	5	9.0	Rh.*s*		12.1	Te.*n*	17	1.2	Di.*s*		17.4	Te.*n*		8.1	Te.*s*
	14.9	Di.*s*		18.8	Te.*s*	11	7.8	En.*n*		2.8	Te.*s*		21.6	Di.*n*		17.9	Di.*s*
	20.5	Rh.*s*	6	2.3	Di.*s*		10.8	Te.*s*	18	1.4	Te.*n*	24	16.1	Te.*s*	3	6.7	Te.*n*
Febr. 1	1.5	Te.*n*		12.7	En.*s*		13.8	Di.*s*		10.1	Di.*n*	25	6.4	Di.*s*	4	2.8	Di.*n*
	17.5	En.*n*		17.5	Te.*n*	12	3.8	Rh.*n*		22.5	Rh.*s*		14.7	Te.*n*		5.4	Te.*s*
	23.8	Di.*n*	7	5.1	En.*n*		9.4	Te.*n*	19	0.1	Te.*s*		17.3	Rh.*n*		12.2	Rh.*s*
2	0.2	Te.*s*		11.2	Di.*n*		22.7	Di.*n*		19.0	Di.*s*	26	13.4	Te.*s*	5	4.1	Te.*n*
	10.0	En.*s*		15.2	Rh.*n*	13	8.1	Te.*s*		22.8	Te.*n*		15.3	Di.*n*		11.6	Di.*s*
	22.8	Te.*n*		16.1	Te.*s*	14	6.8	Te.*n*	20	21.4	Te.*s*	27	12.1	Te.*n*			
3	2.7	Rh.*n*	8	14.8	Te.*n*		7.5	Di.*s*	21	3.8	Di.*n*		23.6	Rh.*s*			
	8.6	Di.*s*		20.1	Di.*s*		10.0	Rh.*s*		4.8	Rh.*n*	28	0.2	Di.*s*			

By means of this list of conjunctions, approximate values of the coordinates x and y, expressed in semi-diameters of the planet's equator, may be easily found for any other time t in the following little table, the argument of which is the interval τ between the time t and the nearest (preceding or following) conjunction. x is positive between a »*s*« and a »*n*« conj., negative between a »*n*« and a »*s*« conj.

	Rhea		Dione		Tethys		Encel.	
τ	x	y	x	y	x	y	x	y
0h	0.0	2.9	0.0	2.1	0.0	1.6	0.0	1.3
1	0.5	2.9	0.6	2.1	0.7	1.6	0.8	1.3
2	1.0	2.9	1.2	2.1	1.4	1.6	1.5	1.2
3	1.5	2.9	1.8	2.0	2.0	1.5	2.2	1.1
4	2.0	2.8	2.4	1.9	2.6	1.4	2.8	1.0
5	2.5	2.8	2.9	1.8	3.2	1.2	3.3	0.8
6	3.0	2.7	3.5	1.7	3.7	1.1	3.7	0.6
7	3.5	2.7	4.0	1.6	4.1	0.9	3.9	0.3
8	4.0	2.6	4.4	1.5	4.5	0.7	4.0	0.1

	Rhea		Dione		Tethys		Encel.	
τ	x	y	x	y	x	y	x	y
9h	4.5	2.5	4.8	1.4	4.7	0.5		
10	4.9	2.5	5.2	1.2	4.9	0.3		
11	5.3	2.4	5.6	1.0	5.0	0.1		
12	5.7	2.3	5.8	0.9				
13	6.1	2.1	6.1	0.7				
14	6.5	2.0	6.2	0.5				
15	6.8	1.9	6.3	0.3				
16	7.1	1.7	6.4	0.1				
18	7.7	1.5						
20	8.2	1.2						
22	8.5	0.9						
24	8.8	0.5						
26	8.9	0.2						

Mimas is in conjunction with the ends of the ring about 3 hours before or after the conj. with the centre, and it is in conj. with the limbs of the ball about 1h2 before or after the conj. with the centre.

66 Lambeth Road, London S. E. July 30. *A. Marth.*

Todes-Anzeige.

Dr. **Carl Rudolf Powalky** died in Washington on July 11, 1881.

Dr. Powalky was born in 1817 at Neu-Dietendorf, near Gotha. He was for several years an astronomical computer for Hansen at Gotha, and afterwards for many years an assistant on the Berliner Jahrbuch.

Besides his regular labors on the Jahrbuch, Dr. Powalky is well known to astronomers by his numerous calculations on the minor planets, his investigations on the Transits of Venus, and other works published in the Astronomische Nachrichten.

In 1873 Dr. Powalky came to Washington and found scientific employment, but failing health compelled him to return to Germany. Again he tried to live in Washington, but his health failed a second time, and he removed to Pennsylvania. The wish to be among scientific men induced him to return to Washington in September 1880, and after a short service in the Census-Bureau, he was about to undertake some work for the Naval Observatory, when death removed him. A simple, devoted man of science has passed away. — May he rest in peace!

Washington, 1881 July 15. *A. Hall.*

Kiel 1881 August 6. Herausgeber: A. Krueger. Druck von C. F. Mohr. Expedition: Sternwarte in Kiel.

Astronomische Nachrichten.

Nr. 2387.

Ephemerides of the five inner Satellites of Saturn (continued) and of the outer Satellite Japetus 1881—1882. By *A. Marth.*

The longitudes of Mimas are deduced from the elements adopted in last years ephemeris without alteration as the conflicting statements of several observers respecting the place of the satellite cannot at present be reconciled and the true correction required is uncertain. The three conjunctions of Mimas with the ends of the ring, observed at Toulouse and published in Comptes Rendus of 9 Mai 1881 p. 1099, show the differences:

1880	Toul. m. t.		Observer	Calc. elong.	Obs. — Eph.
Sept. 28	$11^h\ 0^m33^s$	*sp*	Baillaud	$302^0.87$	$+\ 8^0.28$
» 29	9 51 11	*sp*	»	306.53	+ 4.62
Nov. 25	10 23 50	*nf*	Fabre	132.15	— 1.00,

the assumed length of the ring being that indicated by conjunctions of the other satellites observed at Toulouse in 1876 and 77. An uncertainty of 4 or 5 minutes in the estimated time of a conjunction of Mimas corresponds to an uncertainty of $1^0.06$ or $1^0.33$ in the longitude in the orbit, and would be small enough to allow trustworthy results to be deduced, if the observed conjunctions were sufficiently numerous and referred to all four positions, »*np*« and »*sf*« as well as »*sp*« and »*nf*«. The apparent orbit of the satellite is now sufficiently open for Mimas to pass the minor axis outside the ball, and it becomes then a question whether there are telescopes powerful enough to allow observations of the satellite to be made in that position. If there are, it will be worth while to employ such telescopes in regular observations of the conjunctions of Mimas with the centre of Saturn, so that a good foundation may be gained for investigating the interesting problem of the motion of the satellite. If there are not, it must be acknowledged that modern telescopes do not allow Mimas to be seen so near to the ball of Saturn, as it was seen by Herschel on Oct. 16 and 18, 1789.

Differences of rightascension between Japetus and the centre of Saturn.

Gr. Noon	$\alpha - A$	Gr. Noon	$\alpha - A$	Gr. Noon	$\alpha - A$	Gr. Noon	$\alpha - A$	Gr. Noon	$\alpha - A$	Gr. Noon	$\alpha - A$
Aug. 7	$+26^s.61$	Sept. 12	$-33^s.05$	Oct. 18	$+39^s.20$	Nov. 23	$-38^s.26$	Dec. 29	$+36^s.83$	Febr. 1	$-24^s.54$
9	22.63	14	29.86	20	37.31	25	37.93	31	37.72	3	27.95
11	18.09	16	25.82	22	34.52	27	36.55	1882		5	30.64
13	13.10	18	21.03	24	30.90	29	34.16	Januar 2	37.71	7	32.54
15	7.77	20	15.62	26	26.54	Dec. 1	30.82	4	36.81	9	33.60
17	+ 2.21	22	9.74	28	21.54	3	26.62	6	35.05	11	33.79
19	— 3.44	24	— 3.56	30	16.02	5	21.71	8	32.51	13	33.11
21	9.05	26	+ 2.75	Nov. 1	10.11	7	16.20	10	29.23	15	31.58
23	14.50	28	9.02	3	+ 3.96	9	10.28	12	25.32	17	29.22
25	19.62	30	15.08	5	— 2.28	11	— 4.10	14	20.85	19	26.11
27	24.30	Oct. 2	20.77	7	8.45	13	+ 2.14	16	15.95	21	22.32
29	28.40	4	25.94	9	14.41	15	8.29	18	10.73	23	17.97
31	31.79	6	30.45	11	19.99	17	14.18	20	+ 5.30	25	13.19
Sept. 2	34.38	8	34.21	13	25.05	19	19.66	22	— 0.21	27	8.08
4	36.08	10	37.11	15	29.45	21	24.59	24	5.67	Mar. 1	— 2.80
6	36.82	12	39.09	17	33.06	23	28.85	26	10.95	3	+ 2.52
8	36.56	14	40.10	19	35.79	25	32.35	28	15.94	5	+ 7.75
10	—35.30	16	+40.14	21	—37.54	27	+35.03	30	—20.50		

Japetus is north of the parallel of the centre of Saturn till Aug. 29,

south	from	Aug. 30	to	Oct. 5
north	»	Oct. 6	»	Nov. 15
south	»	Nov. 16	»	Dec. 23
north	»	Dec. 24	»	Febr. 2
south	»	Febr. 3	»	Mar. 5

66 Lambeth Road London S.E. 1881 Aug. 6. *A. Marth.*