The star 061133n, ... Columbae[1]), which is C.P.D. −33°1059 and C.DM. −33°2825, was announced in 1889 by Kapteyn in A. N. 125.165 and Cape Ann. 9 p. 8B as probably variable, because a Cape photograph taken on March 18, 1889, showed the star to be of magnitude 10.0, while 5 other photographs showed it as about magnitude 9.2. This object was inserted in the Second Catalogue of Variable Stars, H. A., 55, Part I, on the evidence of the Cape photographs and eleven Harvard photographs, on one of which it was fainter than on the others. See H. A. 55, 38. It was found independently in the present research, and was suspected to be of the Algol type before the object was known to be identical with 061133n, already announced as a variable. 166 photographs were accordingly examined, on 13 of which the star is fainter than normal. The photographic range appears to be from magnitude 9.4 to 10.2, and the period to be approximately $2^d.8$. A list of the plates on which the star appears to be certainly fainter than its normal magnitude, 9.4, is given in Table II, in which the successive columns give the plate number, the date, the Julian Day and decimal following Greenwich Mean Noon, and the magnitude.

Table II. Minima of 061133n.

Plate	Date	J. D.	Magn.
B 4627	1889 Nov. 13	11320.826	9.9
B 7130	1891 Nov. 27	12064.825	10.1
B 12461	1894 Nov. 9	13142.782	10.2
B 20991	1898 Mar. 2	14351.600	10.0
B 24053	1899 Sept. 1	14899.901	10.1
B 26424	1900 Oct. 11	15304.896	10.1
M 1068	1901 Sept. 20	15648.865	10.0
B 31100	1902 Nov. 19	16073.722	9.8
B 31103	1902 Nov. 19	16073.754	10.2
M 2294	1903 Sept. 29	16387.808	10.1
M 2448	1904 Jan. 13	16493.693	9.9
M 3182	1904 Nov. 2	16787.810	10.1

The variability of SX Andromedae, H. V. 2905, was announced in Circular 129, A. N. 175.167. Observations, by Miss *Cannon*, with the 6-inch Equatorial Telescope, give the following results. On March 6, 1907, the star was very faint, about magnitude 13. On April 7, 1907, it was invisible and fainter than magnitude 12.5. On Oct. 15, Nov. 1, Nov. 9, and Nov. 30, 1907, the magnitudes were 9.2, 9.1, 9.2, and 10.0, respectively. The variability, therefore, has been confirmed visually, and the observations are in accord with the elements published in Circular 129, which give Oct. 29, 1907 as a computed date of maximum.

The variability of SZ Aquilae, H. V. 2917, and TT Aquilae, H. V. 2918, announced in Circular 129 (A. N. 175.167), has been confirmed visually by means of observations on Aug. 6, 10, 12, 13, 15, and 28, 1907. SZ Aquilae was bright on Aug. 6, and near minimum on Aug. 12, 13, and 15. According to the formula given in Circular 129, maxima of this star occurred on Aug. 2.9 and Aug. 20.1, 1907. The light probably changes slowly near the time of maximum. TT Aquilae is especially interesting on account of its brightness and probable color changes. This star was observed to be increasing in light, from Aug. 6 to Aug. 12, 1907, and was at maximum on Aug. 12, and Aug. 13, 1907. According to the formula given in Circular 129, a maximum of TT Aquilae occurred on Aug. 12.1, 1907.

Harvard College Observatory, Cambridge, Mass., 1907 Dec. 6. *Edward C. Pickering.*

[1]) Im General-Register der Bände 121 – 150 der A. N. ist p. 376 irrtümlich Canis maj. gesetzt. *Kb.*

Observations of the egress of Titan's shadow.

By *R. T. A. Innes.*

The following observations were made here with the 9-inch Grubb Refractor:

Egress of the shadow of Titan.

1907 Oct. 5. Observer Mr. *R. N. Kotze.*

First contact with limb	$6^h 54^m$ Gr. M. T.
Half off	7 4
Nearly off	7 20
Off	7 21

Definition was not good and later observations showed that the first two phenomena were about 5^m too early.

From these observations we have:

Time of central egress $7^h 9^m \pm 2^m$ Gr. M. T.

It was noticed that the shadow of Titan was twice as dark as that of the ring and that it was at least twice as broad.

Egress of the shadow of Titan.

1907 Oct. 21.

Gr. M. T.	
$6^h 5^m$	Near internal contact
6 6	Internal contact (rejected)
6 $8\frac{1}{2}$	» »
6 13	$\frac{1}{4}$ off
6 $17\frac{1}{2}$	$\frac{1}{3}$ off
6 $18\frac{1}{2}$	Shadow half off
6 $19\frac{1}{2}$	$\frac{2}{3}$ gone
6 $21\frac{1}{2}$	$\frac{3}{4}$ gone
6 23	Nearly gone
6 24, $24\frac{1}{2}$, 25, $25\frac{1}{2}$, 26	Still seen
6 27	Gone

Assuming that the whole time of egress is 18 minutes, we get

	Observed time	Red. to Centr. Phase	Central Phase
Internal contact	$6^h\ 8^m.5$	$+9^m.0$	$6^h\ 17^m.5$
$1/4$ off	6 13.0	+4.5	6 17.5
$1/3$ off	6 17.5	+3.0	6 20.5
Central	6 18.5	0.0	6 18.5
$2/3$ gone	6 19.5	−3.0	6 16.5
$3/4$ gone	6 21.5	−4.5	6 17.0
External contact	6 26.5	−9.0	6 17.5
		Mean	6 17.9 Gr. M.T.

The probable error of this result is about 0.6 minutes; thus, as the shadow was about $0''.5$ in diameter and took 18^m to move off the disc, the place of the shadow with reference to Saturn's limb is subject to a probable error of $\pm 0''.02$. The observations were made to half minutes only. The clock used was found to require a correction of 6^s, which has been ignored.

1907 Nov. 6. Egress of the shadow of Titan.

The phases observed were internal contact, $1/6$ off, $1/4$ off, $1/3$ off, $1/2$ off and so on to external contact. The sidereal times were $22^h\ 0^m$, 1^m, 3^m, 5^m, 6^m, 7^m, 8^m, 9^m, and 16^m. These give for middle phase

	Sidereal Time	$22^h\ 6^m.6 \pm 2^m.0$
or	Greenwich Mean Time	5 15.2 ± 2.0

Definition was very bad and it is probable that all the phases were observed too early.

These three sets indicate a correction of 18 to 20 minutes to Professor H. Struve's predicted times.

Government Observatory, Johannesburg, 1907 Nov. 28. *R. T. A. Innes.*

Tafel der Differential-Präzession und Nutation für 1908.

$\varphi(\alpha)_{l=0} = -\sin 1' g \cos(G+\alpha)$ in 0.0001.

Für $\alpha > 12^h$ gehe man mit $\alpha - 12^h$ in die Tafel ein und kehre das Vorzeichen um.

1908	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	8^h	9^h	10^h	11^h	12^h	1908
Jan. 1	+19	+20	+20	+19	+16	+13	+ 8	+ 3	− 3	− 8	−12	−16	−19	Jan. 1
Febr. 1	+13	+14	+14	+13	+12	+ 9	+ 6	+ 2	− 1	− 5	− 8	−11	−13	Febr. 1
März 1	+ 9	+10	+10	+ 9	+ 8	+ 6	+ 4	+ 1	− 1	− 4	− 6	− 8	− 9	März 1
April 1	+ 6	+ 6	+ 6	+ 6	+ 5	+ 4	+ 3	+ 1	0	− 2	− 3	− 5	− 6	April 1
Mai 1	+ 2	+ 3	+ 3	+ 4	+ 4	+ 4	+ 3	+ 3	+ 2	+ 1	+ 1	− 1	− 2	Mai 1
Juni 1	− 4	− 2	− 1	0	+ 2	+ 3	+ 4	+ 5	+ 5	+ 5	+ 5	+ 4	+ 4	Juni 1
Juli 1	−10	− 8	− 7	− 4	− 2	+ 1	+ 3	+ 6	+ 8	+ 9	+10	+10	+10	Juli 1
Aug. 1	−15	−15	−13	−10	− 6	− 3	+ 2	+ 5	+ 9	+12	+14	+15	+15	Aug. 1
Sept. 1	−20	−19	−18	−15	−11	− 6	− 1	+ 4	+ 9	+14	+17	+19	+20	Sept. 1
Okt. 1	−23	−23	−21	−18	−13	− 8	− 2	+ 4	+10	+15	+19	+22	+23	Okt. 1
Nov. 1	−27	−27	−24	−20	−15	− 8	− 1	+ 6	+12	+18	+23	+26	+27	Nov. 1
Dez. 1	−33	−32	−28	−23	−17	− 9	− 1	+ 8	+16	+23	+28	+31	+33	Dez. 1
Dez. 31	−39	−38	−34	−28	−20	−11	− 1	+ 9	+19	+27	+33	+37	+39	Dez. 31
$n\cos\alpha\sin 1'$	+58	+56	+50	+41	+29	+15	0	−15	−29	−41	−50	−56	−58	$n\cos\alpha\sin 1'$
	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	8^h	9^h	10^h	11^h	12^h	

Die Tafel gilt unmittelbar zur Reduktion auf den vorhergehenden Jahresanfang; zur Reduktion auf den folgenden Jahresanfang sind die Zahlen der abgetrennt stehenden letzten Zeile zu den Tafelwerten zu addieren.

Die scheinbare Koordinatendifferenz zweier Gestirne wird in eine mittlere verwandelt durch Anbringung der Korrektionen (A. N. 3832):

$$(\text{Korr. } \Delta\alpha)^s = \Delta\alpha^m \sec\delta\,(\varphi(\alpha)\sin\delta + \chi(\alpha, 0)) + \Delta\delta^m \sec^2\delta\,(\varphi(\alpha - 6^h) + \chi(\alpha - 6^h, 0)\sin\delta)$$

$$(\text{Korr. } \Delta\delta)'' = -\Delta\alpha'\,(\varphi(\alpha - 6^h) + \chi(\alpha - 6^h, 0)\sin\delta) + \Delta\delta'\,\chi(\alpha, \delta).$$

Die φ-Funktionen werden der vorstehenden, die χ-Funktionen den »immerwährenden Tafeln für Differentialaberration« (A. N. 160.279) entnommen.

Berlin, 1908 Jan. 9. *R. Prager.*

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(470) Kilia. Correzione all'effemeride (V. R. I. 34): 1908 Genn. 24 $-1^m 8^s + 4''.1$ Gr. $12^m.5$. *G. Zappa.*

(506) Marion. Corr. all'effem. (V. R. I. 34): 1908 Genn. 23 $-1^m 29^s + 16''.7$ Gr $11^m.7$. *E. Millosevich, G. Zappa.*