

3. Für die Störungen, die von der veränderlichen Stellung der Planeten herrühren: (Die von Merkur herrührenden periodischen Störungen waren zu vernachlässigen.)

	Anfang				Ende				Ende— Anfang
	Mars	Erde	Venus	Summe	Mars	Erde	Venus	Summe	
δi	—0"0013	+0"0034	—0"0006	+0"0015	—0"0001	0"0000	—0"0001	—0"0002	—0"0017
$\delta \Omega$	+0.0005	—0.0015	+0.0002	—0.0008	—0.0004	—0.0002	—0.0006	—0.0012	—0.0004
$\delta V p$	+0.0019	+0.0010	+0.0007	+0.0036	+0.0020	+0.0008	—0.0002	+0.0026	—0.0010
$\delta(1:a)$	—0.0021	—0.0017	—0.0006	—0.0044	+0.0009	—0.0008	—0.0001	0.0000	+0.0044
$\delta \omega + \cos i \delta \Omega$	+0.0013	—0.0032	+0.0006	—0.0013	+0.0020	—0.0041	—0.0004	—0.0025	—0.0012
$\delta T - a \sqrt{p} (\delta \omega + \cos i \delta \Omega)$	—0.1335	+0.1015	+0.0173	—0.0147	+0.6140	—0.8548	—0.1367	—0.3775	—0.3628

Aus $\delta(1:a)$ folgt: $\delta \mu = \frac{3}{2} \mu a \cdot \delta(1:a)$ und aus δT und $\delta(1:a)$:

$$\delta M = \frac{3}{2} \frac{t-T}{\sqrt{a}} \delta(1:a) - \frac{\delta T}{a \sqrt{a}},$$

ferner ist:

$$\delta \varphi = -\frac{\delta \sqrt{p}}{e \sqrt{a}} - \frac{\sqrt{a} \delta p}{2e} \delta(1:a) \text{ und } \delta \pi = \delta \Omega + \delta \omega.$$

Die von den 4 Planeten Mars, Erde, Venus, Merkur vom 16. Dec. 1872 bis zum 4. Sept. 1884 ausgeübten Störungen der Elemente des Cometen betragen hiernach:

$$\begin{aligned} \delta M &= +3''.7380 \\ \delta \pi &= -3.8941 \\ \delta \Omega &= +0.4302 \\ \delta i &= -1.4806 \\ \delta \varphi &= -0.1593 \\ \delta \mu &= -0.0201133 \\ \delta \log a &= +0.0000227 \end{aligned}$$

Königsberg 1885 Dec. 17.

Diese Störungen zu den oben angegebenen Elementen addirt, geben für die Erscheinung im Jahre 1885 folgende endgültige Elemente des Tuttle'schen Cometen:

Osculation und Epoche 1885 Juli 11.0

$$\begin{aligned} M &= 355^\circ 32' 46''.00 \\ \pi &= 116^\circ 28' 58''.79 \\ \Omega &= 269^\circ 42' 1.46 \\ i &= 54^\circ 19' 45''.45 \\ \varphi &= 55^\circ 14' 22''.58 \\ \mu &= 257''.8648 \end{aligned} \quad \left. \begin{array}{l} \\ \\ \\ \\ \end{array} \right\} \text{Mittl. Aequin. 1890.0.}$$

$$\log a = 0.7590765$$

Nach Veröffentlichung dieser Elemente und der aus ihnen sich ergebenden Ephemeride in Nr. 2674 der A. N. wurde der Comet am 8. August von Herrn Perrotin in Nizza wieder aufgefunden. Als Correction der Ephemeride folgt aus 12 in Nizza angestellten Beobachtungen in Rectascension $-12''.6$ und in Declination $+5' 36''$.

Johannes Rahts.

Observations of Comet 1886... (Fabry)

made at Mr. Wigglesworth's Observatory with the 15.5 inch Cooke Refractor.

1885	Greenw.M.T.	$A\alpha$	$A\delta$	Comp.	α app.	δ app.	*
Dec. 4	7 ^h 41 ^m 50 ^s	—1 ^m 50 ^s 14	+8' 41".2	10.10	0 ^h 32 ^m 5 ^s 96	+20° 57' 32".8	1
5	12 12 22	—1 0.41	—1 36.8	9.9	0 29 19.69	+20 55 32.6	2

Adopted mean Places of Comparison Stars for 1885.0

*	α 1885.0	δ 1885.0	Authority
1	0 ^h 33 ^m 52 ^s 56 +3 ^s 54	+20° 48' 27".1 +24".5	W ₂ 0 ^h 33 ^m 52 ^s 56
2	0 30 16.59 +3.51	+20 56 44.7 +24.7	W ₂ 0 ^h 30 ^m 16.59

Remarks.

Dec. 4. The comet is round, faint, and about 1' in diameter, the nucleus being about equal to a 12th mag. star. The comparison star is the principal of an open double star.

Dec. 5. The comet has not perceptibly changed in brightness since yesterday.

The observations are not very easy, the faintness of the comet rendering a feeble illumination of the wires necessary. In consequence of that the wires appear ill defined and great care is required to get them centrally

over the comet; for the wire, where it is over the brighter part of the comet, becomes almost invisible for want of a dark background, while an increased illumination of the wires renders the comet nearly invisible. No such difficulty exists with the comparison star; if it is a bright one, the wire appears dark on the small disk of the star, and if it is a faint one, the bright wire is seen without difficulty right across the star's image. — The first intelligence of the discovery was received here through a Dun Echt Circular.

Mr. Wigglesworth's Observatory, Scarborough 1885 Dec. 9.

J. Gerh. Lohse.