Beobachtung der Sonnenfinsterniss 1882 Mai 16 auf der Sternwarte zu Bonn.

Eintritt 18 ^h 34 ^m 13 ^s 7	m. Z. Bonn	Dr. Scheiner
14.2	»	Dr. Lakits
Austritt 19 59 21.1	»	»
23.4	»	Dr. Scheiner
29.8	»	Schönfeld.

Die Beobachtungen sind vielleicht zweier Verbesserungen bedürftig. Die ursprüngliche Notirung des Herrn Dr. Lakits giebt für den Eintritt 34^m 44^s 2, derselbe glaubt aber sicher, dass er sich nur um 30^s verzählt habe. Ich selbst wurde bei dem Controliren der Uhr nach der Beobachtung zweifelhaft, ob nicht die notirte Zeitsecunde um +10 zu corrigiren sei, weil mir das Zeitintervall zwischen Austritt

des Mondes und Controliren der Uhr viel kleiner gewesen zu sein schien, als der Notirung entsprach. Ich halte aber doch jetzt diesen Fehler für unwahrscheinlich und bin bei der ursprünglichen Notirung geblieben.

Die Fernröhre waren für Scheiner das 4¹/₂ füssige (Benzenberg'sche) Fernrohr, Vergrößerung 96. Dr. Lakits und ich haben mit Frauenhofer'schen 30 zölligen Fernröhren und 60 maliger Vergrößerung beobachtet. Die im Ganzen sehr wechselnde Luft fand ich gerade zur Zeit des Endes der Finsterniss sehr ruhig, so dass ich den flachen Einschnitt des Mondes mit Ruhe bis zu seinem Verschwinden verfolgen konnte.

Bonn 1882 Oct. 13.

E. Schönfeld.

On the orbit of the Great Comet.

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I herewith communicate parabolic and elliptic elements of the great comet, obtained by Mr. O. C. Wendell and myself from the following normal places:

Greenwich M. T.	α 1882.0	δ 1882.0
Sept. 20.00000	11 ^h 15 ^m 17 ^s 47	— 0° 25' 35".6
Oct. 5.00000	10 33 56.87	— 8 55 20.8
19.92081	10 13 12.48	— 15 10 39.7

The 1st normal was based on seven observations from Sept. 18-Sept. 21, at Dun Echt, Coimbra and Washington, giving two of them (Washington Sept. 20 and 21.) quadruple weight; the 2^d from ten observations Sept. 30-Oct. 9, at Glasgow, Missouri, Albany, and at this observatory; and the 3^d from three observations at Albany, and this observatory, on the 19th October.

It was found that the normals could not be satisfied with a parabola. The derived elements:

$$\begin{aligned} T &= \text{Sept. 17.22013 Gr. m. T.} \\ \omega &= 69^\circ 28' 46''.4 \\ \Omega &= 345 53 40.4 \\ i &= 141 55 15.0 \end{aligned} \left. \vphantom{\begin{aligned} T \\ \omega \\ \Omega \\ i \end{aligned}} \right\} \text{m. Aeq. 1882.0}$$

$$\log q = 7.8915778$$

leaving outstanding the residuals (C—O)

$$\begin{aligned} \Delta 2 \cos \beta &= +18''.8 \\ \Delta \beta &= + 8.9 \end{aligned}$$

An elliptic orbit computed from the same data gave the elements:

$$\begin{aligned} T &= \text{Sept. 17.2304 Gr. M. T.} \\ \omega &= 69^\circ 22' 7''.2 \\ \Omega &= 345 50 34.0 \\ i &= 141 54 56.2 \\ \log q &= 7.8835636 \\ e &= 0.9999700 \end{aligned}$$

I believe the deviation from a parabola thus indicated, to be real, although the corresponding period is very long.

It should be remarked that the 8¹/₂ year ellipse published on Oct. 5, was vitiated by an error in the position of the 23^d of September, which, on account of the scantiness of the available data could not be detected at that time.

I append values of the coordinates for the equator by both of the above sets of elements (equinox 1882.0)

P a r a b o l a.

$$\begin{aligned} x &= r [9.9950379] \sin(170^\circ 40' 5''.7 + v) \\ y &= r [9.9876182] \sin(262 46 43.7 + v) \\ z &= r [9.4460963] \sin(49 9 30.9 + v) \end{aligned}$$

E l l i p s e.

$$\begin{aligned} x &= r [9.9950007] \sin(170 35 53.8 + v) \\ y &= r [9.9876224] \sin(262 42 59.4 + v) \\ z &= r [9.4465116] \sin(48 59 30.2 + v) \end{aligned}$$

The orbits here given represent the earliest ante-perihelion position known to us at this writing, — that of Sept. 8, at the Cape of Good Hope, as follows:

$$\begin{aligned} \text{Parabola} &\dots\dots +2''.5 \quad +96'' \\ \text{Ellipse} &\dots\dots -2.5 \quad +76 \end{aligned}$$

These differences seem to indicate that the disturbance suffered by the comet in passing through the coronal region could not have been great. The same inference may be drawn from the transit-ingress observed at the Cape of Good Hope. According to the above parabola the comet at the instant named would have passed upon the sun's limb, and by the ellipse it had not quite reached it, the difference being about 1'.5 of arc. A change of 5 or 6 minutes of time in the perihelion passage would account for the difference observed, and this quantity is certainly within the limits of uncertainty of the determination.

Harvard College Observatory 1882 Oct. 28.

S. C. Chandler jr.