

F. Bidschof. Bestimmung der Bahn des Cometen
1848 I.

Der am 7. August 1848 von C. A. Petersen zu Altona aufgefunden teleskopische Comet konnte nur wenige Wochen beobachtet werden, da er einen Monat später in das Perihel kam. Auf Grund der geringen Anzahl von Beobachtungen wurde unter Neurechnung der Sonnenörter und der Reductionselemente, sowie nach sorgfältiger Bestimmung der Positionen der benutzten Vergleichsterne als die wahrscheinlichste Bahn die folgende Parabel erhalten:

$$\begin{aligned} T &= 1848 \text{ Sept. } 8.045284 \text{ M. Z. Greenw.} \\ \omega &= 260^\circ 57' 36''.25 \\ \Omega &= 211 \ 31 \ 43.08 \\ i &= 95 \ 36 \ 33.71 \\ \log q &= 9.5050777 \end{aligned} \left. \vphantom{\begin{aligned} T &= 1848 \text{ Sept. } 8.045284 \text{ M. Z. Greenw.} \\ \omega &= 260^\circ 57' 36''.25 \\ \Omega &= 211 \ 31 \ 43.08 \\ i &= 95 \ 36 \ 33.71 \end{aligned}} \right\} \text{Mittl. Aequ. } 1848.0$$

Eine Untersuchung, ob die Einführung einer Excentricität die Beobachtungen befriedigender als diese Parabel darstelle, führte zu dem Resultate, dass in der That eine Andeutung einer elliptischen Bahn vorliege, dass jedoch eine absolute Gewissheit hierüber nicht zu erzielen sei.

Can the parallax of fixed stars be made perceptible?

A suggestion to astronomers by *Chas. H. Kummell*, U. S. Coast and Geodetic Survey, Washington.

Since the invention of the stereoscope by Wheatstone and Brewster we know that the most important condition for perceiving distance and solidity is binocular vision. The distance between the eyes (about $2.5^{\text{in.}}$) is the small parallactic base, which enables us by combining the views of objects from each eye to distinguish near objects from farther ones by their appearing more different to each eye. On account of the smallness of this parallactic base this ability to perceive distance is lost even at moderate terrestrial distances; with celestial objects we can only perceive angular distance so that they appear to lie on a sphere. Could we substitute for our $2.5^{\text{in.}}$ base any other larger distance then farther objects would appear more solid in proportion. This is, to some extent effected by Helmholtz's telestereoscope, which consists of two object mirrors, from which an object is reflected on two ocular mirrors, which stand vertical and inclined to each other at such an angle that the reflected images will be visible to the respective eye. This arrangement presents objects as they would appear to a giant, whose eyes are as far apart as the object mirrors. The effect of the telestereoscope is however likewise limited to terrestrial objects because the parallactic base must, for obvious reasons, be limited to a few feet.

If in taking photographic stereoscopic views of objects, we wish their combined effect under the stereoscope to be identical with their actual appearance to our eyes; it is necessary, that they be taken on the same parallactic base viz. $2.5^{\text{in.}}$ If the two views are taken farther apart, we obtain an exaggerated effect as in Helmholtz's telestereoscope. By this mode of obtaining exaggerated views of objects we are however not limited to terrestrial objects and there is no reason why, for instance, we could not obtain an exaggerated stereoscopic view of the moon or the

planets from photographs, taken the same instant at two distant observatories. Likewise two simultaneous photographs of the transit of Venus should plainly show this planet apparently drawn out of the celestial sphere.

In all these cases the views are simultaneous or nearly so and this is an essential condition if the object has a considerable proper motion. Since that of the fixed stars is small and their distance so great, we may use for them the non-simultaneous base, the earth's orbit by combining two photographs of a star cluster half a year apart. Neglecting proper motion, any star of sensible parallax should appear drawn out of the celestial sphere and seem to be at the distance $\frac{2.5^{\text{in.}}}{\sin \pi}$ or about 13 kilometers for a parallax of $1''$. In the stereoscopic diagram*) I have attempted to show what kind of effect two semiannual views of the same star cluster should have under the stereoscope if one or more stars have a sensible parallax. The points in the hexagon represent stars without parallax while that near the center is one with sensible parallax and appears nearer in consequence.

Should the stereoscopic effect of such views be sufficiently sensible a new method of measuring parallax could be obviously founded on it, moreover we should thus obtain an easy method of searching for stars with sensible parallax.

Since the entire solar system moves in space, we also should by combining views of the same cluster, years apart, obtain a visible evidence of this motion, causing a star with parallax to appear nearer in proportion to the interval.

I conclude with the German adage: Probiren geht über Studiren, and I earnestly appeal to astronomers to make a fair trial of my suggestion.

*) Das betreffende Diagramm zeigt nebeneinander 2 regelmässige Sechsecke von 27^{mm} Seitenlänge. Bei dem einen ist der Mittelpunkt durch gerade Linien mit den Ecken verbunden, bei dem andern ein um 2^{mm} excentrischer Punkt. Unter dem Stereoskop betrachtet, geben die Figuren den bekannten stereoskopischen Eindruck.

Kr.

Inhalt:

Zu Nr. 2798-99. *L. Swift.* Catalogue No. 6 of Nebulae discovered at the Warner Observatory. 217. — *H. Krutz.* Zusatz hierzu. 221. — *A. Svedstrup.* Definitive Bahnbestimmung des Cometen 1863 IV. 221. — *H. Krutz.* Ephemeride des Cometen 1887... (Barnard Mai 12). 241. — *E. C. Pickering.* Observations of Comet 1887... (Barnard May 12). 243. — *E. E. Barnard.* Ring-Micrometer Observations of Comet 1887... (Barnard May 12). 243. — *O. Tetens.* Zusatz hierzu. 245. — Vermischte Nachrichten. 245. — *C. H. Kummell.* Can the parallax of fixed stars be made perceptible? 247.