The star Boss 2184 as a variable of the β Cephei type, by Ejnar Hertzsprung.

The variability of Boss 2184 = C.P.D. = 46°2254, 8°8 = 4°7, 46°16′2 (1875), 7°4 = H.D. 68808, F8p was discovered by H. Van Gent on plates of the series mentioned in the preceding note.

I estimated the star on 257 plates using as comparison stars

\[
\begin{array}{cccc}
C. P. D. & H. D. & Sp. & \text{Cape Zone brightness in steps} \\
46°2283 & 69168 & B3 & 6°0 00 \\
45°2315 & 69650 & A2 & 6°6 48 \\
\end{array}
\]

The differences in colour between the variable and the comparison stars make the estimates difficult and liable to be affected by systematic errors.

The period was found to be \(4^d.2281 \pm 4.0012\) (m.e.) and the phases were computed by the formula

\[
\phi = 2365 (\text{J. D. hel. M. astr. T. Grw} - 2420000).
\]

The observations were then arranged according to phase and divided into 26 groups of 10 or 9 estimates each. Mean values for these groups are given in Table 1 and represented graphically in Figure 1.
Adopting the photographic magnitudes given in the Cape Zone Catalogue (London 1927) for the comparison stars as indicated above, Boss 2184 varies from $6^m1$ to $6^m6$, the total range thus being half a magnitude.

![Figure 1.](image)

The form of the lightcurve is surprising as it appears to be practically symmetrical, while for other stars of the δ Cephei type with similar periods the rule is that the rise in brightness is markedly quicker than the fall.

From the differences between two observations following each other in phase the mean error of a single estimate is found to be $±067$ or $±083$, supposing the adopted magnitudes of the comparison stars to be correct.

The maximum occurs at the phase $46$ and the ephemeris representing the present observations is

$$\text{Max. at } J.D. \ 2426145.71 + 4'2281 \times E.$$  

According to Boss' *P.G. Cat.* the annual proper motion of the variable is $°046 \pm °016$ (m. e.) in the direction $243° \pm 19°$ (m. e.).