ON A NEW VARIABLE OF LONG PERIOD,

$10^h\ 44^m\ 34^s$ $-20°\ 28'.8$ (1855.0)

By S. C. CHANDLER, Jr.

Observations during the last month seem to establish beyond doubt the variability of this star, which was suspected to be variable by Dr. Gould, from the fact that, although it was estimated in 1871, at Cordoba, as $7^M.3$, it was invisible on three other occasions with the opera-glass. It was not included in the *Uranometria Argentina*.

On April 2 of the present year the star attracted my attention, being found, by careful comparison with its neighbors, to be only $9^M.0$ or $9^M.1$, while it was given as $6^M.7$ in the SDM. The star is of the most vivid red. I know of but two or three other variables, such as *V Cygni* and *S Cephei*, which exceed it in intensity of color. The variations during the past month have been very slight, and it manifestly belongs to the class of long-period variables. Indeed, a collation of all the known estimates of its magnitude seems to indicate that the period is over 500 days, and consequently among the longest known. These estimates are here given, for convenience in any future discussion of the period.

1797 Mar. 19	6.7 mag.	Lalande	Bien rouge
1851 Feb. 15	6 "	Argelander	Sehr roth
1871 July 6	7.3 mag.	Cordoba	
1873 April 20	7 "	Birmingham	
" June 9	Invisible in O.G.	Cordoba	
" Aug. 14	" "	" "	
1874 Jan.	" "	" "	
" May 8	8 mag.	Birmingham	Fine red
1876 Mar. 22	7.2 "	Copeland	Brown red
" April 1	7 "	Birmingham	
" April 30	7.5 "	"	Ruby
1877 May	8 "	Cordoba	
1879 Feb. 22	6.0 "	Copeland	Copper red
" Mar. 19	6.8 "	"	

There are besides four observations of it in the Cordoba General Catalogue, 8^M.

From these data, in connection with my own observations, I infer the hypothetical elements,

1873 March + 535 days,

which, however, rest on an exceedingly slender basis. Direct observations must be awaited to establish the period with any certainty. The Cordoba data seem to afford good evidence that the period is not less than a year.

Cambridge, 1888 *May* 3.

ELLIPTIC ELEMENTS OF COMET 1888 a,

By Rev. GEORGE M. SEARLE.

I have computed the following elliptic elements of Comet 1888 a, by the method given in No. 162 of this Journal, from the Cape observation of Feb. 18, the Albany observation of March 17, and one made at the observatory of Harvard College on April 16, by Mr. Wendell.

$$\begin{aligned} T &= \text{1888 March } 16.99894 \text{ Greenw. M.T.} \\ \Omega &= 245°\ 23'\ 1''.5 \\ \omega &= 359\ 54\ 55\ .3 \quad 1888.0 \\ i &= 42\ 15\ 24\ .0 \\ \log q &= 9.844330 \\ e &= 0.9949912 \end{aligned}$$

from which we have $\log a = 2.1446$ (this was the assumption made for the last hypothesis), and the period equal to 1648 years.

The middle place is represented as follows, (O—C):

$$\Delta\lambda = -2''.9 \qquad \Delta\beta = +2''.6$$

It could easily be more accurately represented without much change in the elements; but it seems quite plain that unless the Cape observation is in error, it cannot be by any parabolic orbit, which will always give too small a radius vector for the middle place, and consequently a negative O—C in λ. It may be remarked that the position of the orbit is remarkably favorable for the manifestation of ellipticity, should it exist.

New York, 1888 *April* 28.

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Published in Boston, semi-monthly, by B. A. Gould. Address, Cambridge, Mass. Price, $5.00 the volume. Press of Thos. P. Nichols, Lynn, Mass.
Entered at the Post Office, at Boston, Mass., as second-class matter. *Closed May 3.*