

EPHEMERIS OF COMET *a* 1892 (*SWIFT*),*

By F. GERTRUDE WENTWORTH.

(Continued from p. 96.)

| G.M.T. | App. α | App. δ | $\log \Delta$ | Br. | G.M.T. | App. α | App. δ | $\log \Delta$ | Br. |
|---------------------------|---|------------------------------------|---------------|-------|--------------------------|---|------------------------------------|---------------|-------|
| Nov. 15.5 ¹⁸⁹² | 23 ^h 44 ^m 41.4 ^s | +34 ^o 36.2 ['] | | | Dec. 9.5 ¹⁸⁹² | 23 ^h 53 ^m 55.3 ^s | +29 ^o 41.9 ['] | | |
| 17.5 | 45 3.6 | 34 6.9 | 0.4231 | 0.021 | 11.5 | 55 4.9 | 29 23.0 | 0.5005 | 0.013 |
| 19.5 | 45 31.1 | 33 38.5 | | | 13.5 | 56 16.9 | 29 5.0 | | |
| 21.5 | 46 3.2 | 33 10.9 | .4359 | .019 | 15.5 | 57 31.8 | 28 47.8 | .5132 | .012 |
| 23.5 | 46 40.2 | 32 44.1 | | | 17.5 | 23 58 49.7 | 28 31.5 | | |
| 25.5 | 47 21.3 | 32 18.2 | .4488 | .018 | 19.5 | 0 0 10.1 | 28 16.0 | .5258 | .011 |
| 27.5 | 48 6.5 | 31 53.0 | | | 21.5 | 1 33.1 | 28 1.3 | | |
| 29.5 | 48 55.5 | 31 29.1 | .4618 | .016 | 23.5 | 2 58.2 | 27 47.4 | .5381 | .010 |
| Dec. 1.5 | 49 48.0 | 31 5.9 | | | 25.5 | 4 25.4 | 27 34.2 | | |
| 3.5 | 50 45.0 | 30 43.5 | .4748 | .015 | 27.5 | 5 54.7 | 27 21.8 | .5503 | .009 |
| 5.7 | 51 45.0 | 30 22.1 | | | 29.5 | 7 26.1 | 27 10.2 | | |
| 7.5 | 23 52 48.3 | +30 1.5 | 0.4876 | 0.014 | 31.5 | 0 8 59.4 | +26 59.4 | 0.5622 | 0.009 |

* Printed in a Supplement issued with no. 279.

OBSERVATIONS OF COMET *f* 1892 (*HOLMES*),

The following observations of this comet have been received, and the first three were printed and distributed in the Supplement to no. 279.

FROM PROF. BOSS AT THE DUDLEY OBSERVATORY.

| 1892 Albany M.T. | No. Comp. | $\Delta\alpha$ | $\Delta\delta$ | α 's apparent | δ | $\log p\Delta$ |
|--|--------------|------------------------------------|-----------------------------------|-------------------------------------|--|---------------------------|
| | | | | | | for α for δ |
| Nov. 13 7 ^h 19 ^m 47 ^s | Ll.1443 27,9 | -2 ^m 58.78 ^s | -3 ['] 38.0 ["] | 0 44 ^h 0.80 ^m | +37 ^o 54 ['] 31.9 ["] | |

Mean Place for 1892.0 of Comparison-Star.

| α | Red. to app. place | δ | Red. to app. place | Authority |
|--------------------------------------|--------------------|--|--------------------|---|
| 0 46 ^h 56.60 ^m | +2.98 ^s | +37 ^o 57 ['] 43.5 ["] | +26.4 ["] | Lund, Astr. Gesellsch. (2 obs.), Paris (1 obs.) |

The comet appears like a very large, bright, round nebula, about 9' in diameter, slightly defective on the s. foll. edge, with a well-marked central condensation. Its faint nucleus is elongated in $p = 110^\circ$, approximately. Computations convince me that this is BIRLA's comet, that it will reach perihelion about Dec. 27, and come very close to the earth about Nov. 27.7 Greenw. M.T.

FROM PROF. J. B. COIT AT BOSTON UNIVERSITY.

| 1892 Washington M.T. | No. Comp. | $\Delta\alpha$ | $\Delta\delta$ | α 's apparent | δ | $\log p\Delta$ |
|---|---------------|---------------------|-----------------------------------|--------------------------------------|---|---------------------------|
| | | | | | | for α for δ |
| Nov. 11 8 ^h 6 ^m 59.8 ^s | W.B.1083 17,7 | +42.54 ^s | -2 ['] 44.4 ["] | 0 44 ^h 51.76 ^m | +58 ^o 6 ['] 41.9 ["] | n9.050 9.850 |

Mean Place for 1892.0 of Comparison-Star.

| α | Red. to app. place | δ | Red. to app. place | Authority |
|-------------------------------------|--------------------|--|--------------------|----------------------|
| 0 44 ^h 6.24 ^m | +2.98 ^s | +38 ^o 9 ['] 0.1 ["] | +26.2 ["] | Weisse's Bessel 1083 |

Prof. COIT writes that on the evening of Nov. 13 he saw the comet distinctly with the naked eye. It seemed about 1½ magnitudes fainter than μ *Andromedae*.

FROM PROF. BARNARD AT THE LICK OBSERVATORY.

| 1892 Mt. Hamilton M.T. | No. Comp. | $\Delta\alpha$ | $\Delta\delta$ | α 's apparent | δ | $\log p\Delta$ |
|---|-----------------|------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------|
| | | | | | | for α for δ |
| Nov. 8 8 ^h 23 ^m 44 ^s | Paris 1105 12,4 | -0 ^m 48.52 ^s | -4 ['] 26.2 ["] | 0 46 ^h 16.26 ^m | +38 ^o 23 ['] 4.5 ["] | n9.228 8.700 |
| 12 47 19 | Paris 1105 2,1 | -0 ^m 55.35 ^s | -5 ['] 30.8 ["] | 0 46 ^h 9.43 ^m | +38 ^o 21 ['] 59.4 ["] | 9.655 0.133 |

Mean Place for 1892.0 of Comparison-Star.

| α | Red. to app. place | δ | Red. to app. place | Authority |
|--|-----------------------|-------------------------|-----------------------|------------|
| $0^{\text{h}} 47^{\text{m}} 1.76^{\text{s}}$ | +3.02 | $+38^{\circ} 27' 5.0''$ | +25.7 | Paris 1105 |

The second position was simply observed to get amount of motion, and is not perhaps very accurate.

The comet was easily visible to the naked eye, as a small hazy star, and almost exactly as bright as the brightest part of the

great nebula in *Andromeda*. With the 12-inch telescope it was perfectly circular and singularly well defined. Two measures at midnight gave the diameter as $4' 35''$.

FROM PROF. YOUNG, AT PRINCETON (OBSERVATIONS BY MR. T. REED).

| 1892 Greenwich M.T. | * | No. Comp. | $\Delta\alpha$ | $\Delta\delta$ | α 's apparent | δ | $\log p\Delta$ for α | for δ |
|--|---|--------------|----------------|----------------|--|-----------|--------------------------------|--------------|
| Nov. 21 $15^{\text{h}} 37^{\text{m}} 6^{\text{s}}$ | 1 | 18 | +16.49 | " | $0^{\text{h}} 42^{\text{m}} 5.54^{\text{s}}$ | " | 9.458 | |
| 16 7 2 | 1 | 10 | | +10.0 | | +37 3 7.4 | .. | 0.161 |

Mean Place for 1892.0 of Comparison-Star.

| α | Red. to app. place | δ | Red. to app. place | Authority |
|---|-----------------------|-------------------------|-----------------------|--------------|
| $0^{\text{h}} 41^{\text{m}} 46.56^{\text{s}}$ | +2.488 | $+37^{\circ} 2' 28.5''$ | +28.80 | W.B. O, 1029 |

PHOTOGRAPHIC AND VISUAL OBSERVATIONS OF COMET *f* 1892 (HOLMES),

By E. E. BARNARD.

The first night that I observed this comet (Nov. 8) I did not examine it with a low power until after moonrise — the micrometer with a high power being used to measure the position before moonrise.

The following night, Nov. 9, however, showed besides a short, faint, hazy tail, a faint nebulous atmosphere about $12'$ in diameter, symmetrically surrounding the well-defined disc of the comet. This hazy atmosphere was also seen with the 4-inch comet seeker.

On the 10th I made a photograph of this object with three hours exposure ($6^{\text{h}} 15^{\text{m}}$ to $9^{\text{h}} 15^{\text{m}}$ Standard Pacific Time) using the 6-in. Willard lens and a Cramer "Lightning" plate, the comet being followed. This long exposure, of course, would totally burn out any of the brighter detail, and was given with the hopes of finding out something about the comet's surrounding.

This plate showed the bright, circular disc as a dense, sharply-defined, round spot, very slightly diffused, south following. Symmetrically surrounding this was the circular, nebulous atmosphere, strongly marked and fairly well defined, and $12'$ in diameter. A rather narrow and faint tail, over half a degree long, was also shown pointing to the southeast. At the extremity of the tail, nearly a degree from the comet, was a faint and very vague looking nebulousness, perhaps half a degree in diameter.

This I am certain belongs to the comet, and may be a diffused nebulous attendant. In a night or two, when the moon will permit a longer exposure in the morning sky, I will try it again with four or five hours exposure, to verify the connection of this diffused nebulous attendant with the comet.

Visually with the 12-inch, the n.p. edge of the comet proper is singularly well defined, while the s.f. edge is somewhat less definite. Take it altogether, however, there is no diffusion of the well-defined disc into the hazy atmosphere that surrounds the comet.

With a low power the object looks like a planet with a faintly surrounding atmosphere.

The nucleus is eccentrically placed, being on the preceding side of the middle of the disc, while near the center of the comet is a second brightening, and from this an elongated condensation extends south following. The general appearance of the comet is that of the vertical projection of a cone — gradually brightening towards the middle. The nucleus is small and ill-defined.

With the naked eye on Nov. 9, the comet seemed to be brighter and more stellar than on the preceding night. On the 10th it may possibly have been a little brighter yet. It was a little less bright than *v Andromedae*.

Mt. Hamilton, 1892 Nov. 11.

ELLIPTIC ELEMENTS OF COMET 1892 *f* (HOLMES),

By REV. GEORGE M. SEARLE.

I attempted to compute an orbit for this comet from the earlier observations, and obtained one bearing some resemblance to that of *BIELA*; but the middle place could not be represented satisfactorily except by an exaggerated

hyperbola. On plotting the observations with later ones, however, it became evident that the rough discovery-observation was altogether too inaccurate to be of service in such delicate work. The problem was therefore taken up anew