

# Kodaikanal Observatory.

BULLETIN No. LXXXII.

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## A BRILLIANT DAYLIGHT COMET OBSERVED AT KODAIKANAL.

By P. R. CHIDAMBARA AYYAR, B.A., F.R.A.S.

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A brilliant comet visible by daylight was seen at Kodaikanal on the 15th December 1927 and it now appears likely that it is De Vico's long-period comet 1846 IV, first observed by Mr. J. F. Skjellerup at Melbourne on December 3, 1927, at 17h. 30m. U.T. in R.A. 16h. 12m. 12s.,  $\delta$  Decln.  $53^{\circ} 57'$  (vide *Nature*, 10th December 1927, page 854, Astr. Column). At the time of preparation of this bulletin, it was not known that any previous observation of the comet had been made.

The Director having left for Madras on the 14th December 1927, I was taking spectroheliograms of the sun on the morning of 15th December, when, at about 8-30 a.m., I.S.T., the peon Poomban, whose duty it was to wind the clock of the siderostat mirror and report the advance of clouds, informed me that there was something bright quite near the sun. As there were small patches of fleecy clouds near the sun, I at first thought that this was also one such, but immediately it became quite evident to me that it was a very bright comet. There was the bright head and there was the tail directed away from the sun. The head was clearly brighter than Venus seen some distance ahead in the west. The other Assistants were at once informed by telephone of the apparition and they and all the other members of the staff saw it. At 8-35 a.m. I made a drawing of the object as it was visible to the naked eye at that time. The head of the comet was about three apparent solar diameters away from the centre of the sun to the east and a little to the south. The tail was not long but at the broadest part was nearly equal to a quarter of the sun's visible disc. Plate I, figure 1, represents its appearance at 8-35 a.m.

At about 9 a.m. an express telegram was despatched to the Madras Observatory with the request to verify the apparition. This message, it was afterwards learnt, was never delivered to the addressee, as a result of which a series of valuable observations of the comet have been missed.

As the object was very close to the sun it was not possible to see it in any of the telescopes, the sun's glare flooding the instruments. There were already some changes taking place in the appearance of the comet. At 12-10 p.m., therefore, I made another drawing of it as seen by the naked eye. This is Plate I, figure 2. It will be seen that the tail at the upper portion was much longer than in the morning, although the noonday sun was shining very close to the comet. At about 2 p.m. a cablegram was despatched to the Astronomer Royal, Greenwich Observatory, informing him of the appearance of the comet near the sun and giving its approximate position. By 2-30 p.m. clouds began to gather, which made further observations impossible on that day.

Plate I, figure 3, represents the appearance of the comet to the unaided eye on the morning of December 16, 1927, at 7-35 a.m. It had by then receded to a distance of nearly  $4\frac{1}{2}$  diameters from the sun's centre, had passed to the north and had become less bright than on the previous day. In the three-inch telescope, at 10 a.m., it had the appearance represented in Plate I, figure 5 and an hour later, in the finder of the photoheliograph—also a three-inch telescope—that represented in Plate I, figure 6. The clear-cut nucleus was dazzling gold and there were two arms of almost the same colour but less bright emanating from it on either side, one more curved than

the other, and the whole thing was wrapped up in a nebulous head and a bifurcated tail which were the colour of bright polished copper. There was only one difference between the appearances an hour apart, namely, that at 11 a.m. one section of the tail had become longer. At 3-0 p.m. when looked at in the three-inch telescope, the appearance was as shown in Plate I, figure 7. The tail had become enormous, symmetry had already begun to be established between the two sections and there were signs of the tail losing its bifurcation and becoming one combined stream.

On the morning of the 17th December the naked-eye appearance was as shown in Plate I, figure 4. When examined in the finder of the photoheliograph, it was found that the changes which were noticed to be taking place the previous afternoon had become complete. There were only the bright clearly defined nucleus and an undivided tail, the longitudinal gap in the middle of the latter having completely filled up. I mounted on the photoheliograph a Wellington and Ward 10" x 10" Lantern Plate and started the exposure at 11-20 a.m. keeping the comet in position by looking through the finder and ceaselessly guiding it by the slow-motion arrangements. There was an interruption by clouds from 11-25 to 11-30. I continued the exposure till 12-25 p.m., so that allowing for the interruption by clouds the plate was exposed for exactly one hour. On development the plate was found to be deeply fogged by the diffused daylight, but there was a very faint reversed (i.e., positive) image of the comet on it. The image has been intensified by being transferred a number of times from plate to plate, but unfortunately it is found to be duplicated on account of error in guiding during the long exposure.

On the 18th the comet was not visible to the naked eye and had to be picked up in the telescope. There was no change in appearance worth mentioning, except that it had become smaller and fainter.

On the 16th, 17th and 18th its positions were noted once a day and they are given below :—

Date	Time I.S.T.	Right Ascension.	Declination.
1927.	h. m.	h. m.	
16th December ... ..	12 0	17 37	20° 7' S
17th ,, .. ..	10 10	17 43	17° 20' S
18th ,, ... ..	11 14	17 46	14° 43' S

The sky was cloudy on the 19th and no further observations were attempted.

KODAIKANAL,  
7th January 1928.

P. R. CHIDAMBARA AYYAR,  
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#### DIRECTOR'S NOTE.

The first intimation received by me was Mr. P. R. Chidambara Ayyar's letter, received in Madras on the morning of the 18th December. I looked for the comet in the neighbourhood of the sun but failed to see it with the naked eye. The sky was hazy round the sun. The same evening the sunset was observed but no comet was seen either before or after sunset. At sunrise next morning the eastern sky was cloudy near the horizon and no comet was seen. In view of the uncertainty of its position it did not seem worth while attempting telescopic observations, so no confirmation of Mr. Chidambara Ayyar's observation was obtained in Madras. It is a pity that Mr. Chidambara Ayyar's first telegram was not received in Madras.

KODAIKANAL,  
7th January 1928.

T. ROYDS,  
*Director, Kodaikanal and Madras Observatories.*

Brilliant Daylight Comet Observed at Kodai Kanal  
Naked-eye View

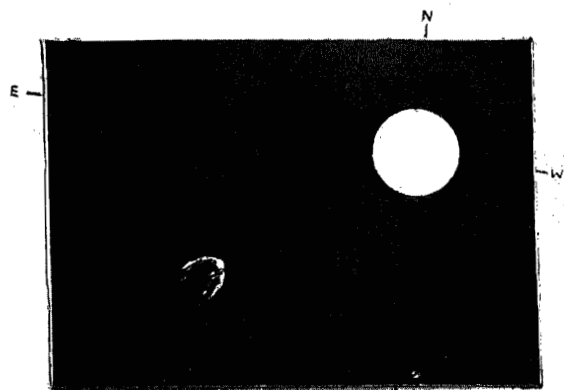


Fig. 1. 8-35 A.M., S.S.T., 15<sup>th</sup> Dec. 1927.



Fig. 3. 7-35 A.M., S.S.T., 16<sup>th</sup> Dec. 1927.



Fig. 4.  
8-40 A.M., S.S.T., 17<sup>th</sup> Dec. 1927.

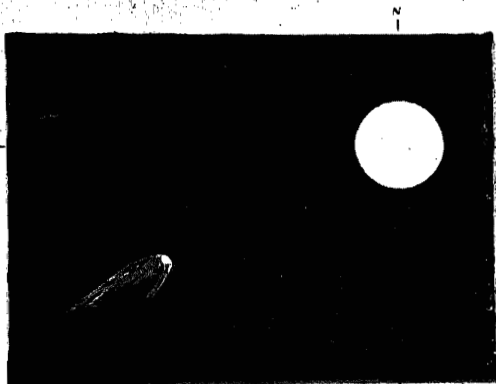


Fig. 2. 12-10 P.M., S.S.T., 15<sup>th</sup> Dec. 1927.

Telescopic View

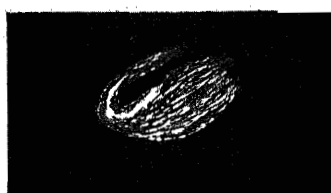


Fig. 5  
10-0 A.M., S.S.T., 16<sup>th</sup> Dec. 1927. In 3-inch Telescope.

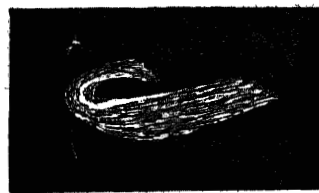


Fig. 6  
11-0 A.M., S.S.T., 16<sup>th</sup> Dec. 1927. In Photoheliograph  
Finder

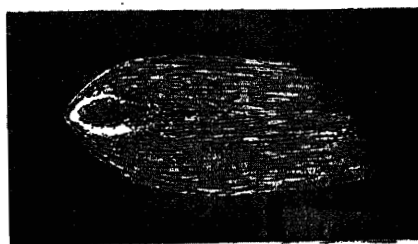


Fig. 7. 3-0 P.M., S.S.T., 16<sup>th</sup> Dec. 1927. In 3-inch Telescope.