## Photographic Observations of Comet C, 1902.

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Comet c (Perrine) 1902, was photographed here on every clear night from October 5 to October 22, clouds preventing either earlier or later ones. With few exceptions two photographs were made on each night. One photograph being made with a portrait lens built on the Petzval system, but afterward refigured by Brashear. This lens had an aperture of twelve centimeters and a focal length of fifty-five centimeters. The other photograph was made with an old "tintype" lens which Mr. W. A. Cogshall rescued from a photograph gallery here and which performs surprisingly well. This lens has an aperture of 5.5 centimeters and a focal length of twenty-two centimeters.

The tail of this comet was exceedingly faint, so faint that it was with difficulty that it could be photographed at all. Each of the photographs showed two streamers, a long one nearly straight and a shorter one more sharply curved. The greatest length of the short tail was shown on the photograph of October 6. It was then 1.°8 long, while on October 22 it did not exceed one-half degree in length. On October 5 the long streamer subtended 3.°2. Each succeeding photograph showed the streamer longer until on October 22 it subtended an angle of 8.°4. In the following table I have shown the results obtained by measuring five of the photographs, which represents fairly well the behavior of the comet.

In this table T is the central time of exposure; L, the length of the long tail in degrees; S, the length of the short tail in degrees; N, the number which when multiplied by the cosine of the angle between the direction of the comet's tail and the radius vector from the sun to the comet gives the length of the long streamer in terms of the mean distance of the earth from the sun:

| T. | L. | S. | N. |
|---|---|---|---|
| h. m. h. m. | | | |
| October 5, 8:10— 9:00 | 3.2 | 1.0 | .0294 |
| October 6, 8:00—11:45 | 3.2 | 1.8 | .0383 |
| October 7, 6:00— 7:20 | 3.8 | 1.5 | .0323 |
| October 20, 6:00— 7:20 | 6.1 | 1.2 | .0686 |
| October 22, 6:15— 7:45 | 8.4 | ... | .0966 |