

May 21 (*Saturday evening*).

Tail traced for 60° with naked eye. Sky good.

May 21 (*Sunday morning*).

17^h 0^m to 17^h 10^m. Moon setting and sky to N.E. sufficiently dark to show cometary band if it existed. Only zodiacal band through *Venus* is visible. This is almost as strong as yesterday morning. Sky good. Air cold and damp.

Photographs were secured on the mornings of May 17 and 18 (among others) with a small single lens which covered a field of about 60° with a light ratio of 1 : 1½. The bright tail is well shown on two exposures on May 17. No certain trace exists on them of the southern tail. Only one exposure was secured on May 18. The bright N. tail is well shown on this as well as a portion of the broad southern band. Owing to the great angular aperture of this lens and to the size of dome and narrowness of slit the southern side of the field was cut off.

Of the reality of this wide southern branch there is not the slightest doubt. Although very much fainter than

the bright northern branch, it was at once picked up on the morning of May 18. It was also easily and certainly recognized on May 20. Unfortunately this southern branch was almost coincident in position with the zodiacal light, and to this is probably to be attributed the fact that it appears not to have been seen by northern observers.

There appears to be little or no doubt that the brighter portion of the tail passed entirely to the north of the Earth. If the wide southern branch persisted, there is practically no doubt that the Earth passed through it about May 20 or 21, civil time. It should be observed here that the moonlight on the evenings of May 20 and following made it impossible to see any object as faint as the southern branch. It cannot be said, therefore, whether this branch persisted after May 20 (*Saturday morning*).

If the mistiness observed on Wednesday morning (May 17) was in reality due to cometary matter, then it may be possible that the Earth passed through a portion of the tail at about the time that the comet transited the Sun.

Cordoba, 1910 July 25.

ELEMENTS OF MINOR PLANET, J. G. 1909,

By JOSEPH B. REYNOLDS.

This planet was discovered by JOEL H. METCALF, Dec. 11, 1909, and was named by his permission "*Lehigh*." The elements computed from four photographic positions, taken on Dec. 11, 1909, Jan. 2, 1910, Jan. 16, 1910, and Feb. 1, 1910, follow:

Observed *minus* computed for 1st and 4th positions:

$$\Delta\beta = +6''.53$$

$$\Delta\beta''' = +5''.18$$

Epoch, 1910.0, G.M.T.

$$M = 57^{\circ} 55' 7.92''$$

$$\pi = 24^{\circ} 54' 36.54''$$

$$\Omega = 88^{\circ} 54' 34.62''$$

$$i = 13^{\circ} 1' 36.53''$$

$$\phi = 7^{\circ} 16' 10.83''$$

$$\log a = .4790764$$

$$\mu = 678''.2534$$

} Ecliptic and Mean
Equinox 1910.0

$$m_0 = 12^m.8$$

$$g = 8^m.9$$

Opposition, Dec. 26, 1909

Lehigh University, 1910 August.

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