

its occasional brilliant showers of Leonids, February seems in recent years to have provided marvellous fireballs of a unique pattern, and quite unmatched in the history of meteoric astronomy. On February 8, 1894, there was a great daylight fireball, appearing in the sunshine soon after noon. On February 22, 1909, a fireball left a streak several hundreds of miles long which remained visible two hours, and drifted about 236 miles to the north-west over the English Channel and south-west of England.

Could photography have been applied and furnished a number of views of its path-position, the wonderful planetary swarm of February 9th last might have taught us some new and important facts. Its visit has certainly provided us with a great novelty among the transient phenomena of our skies. We must evidently be prepared to view the incursion of a strange object into the firmament at any time. The various forms of meteoric apparition are so extremely diversified that past researches have not nearly exhausted them. Observers are practically non-plussed by the surprise visits of remarkable meteors, and they ought to be better prepared and more alert, if they would improve upon the very defective observations made of past phenomena. The unique object of last February will direct a useful attention to the subject, and if it leads up to the making of but one new observer it will not have come in vain.

BRISTOL, ENGLAND,
September, 1913.

REMARKS ON MR. DENNING'S PAPER

The chief discrepancy between Mr. Denning's conclusions and my own is in the height of the meteors when passing Toronto.

In obtaining my result I used only observations on which I thought I had especial reason to depend. Mr. Hahn, who supplied the drawing for the frontispiece, besides being an artist is an amateur astronomer. He is the son of the late Otto Hahn, of Toronto, who possessed a large and valuable collection of

meteorites. Mr. Hahn's observation was closely corroborated by Messrs. Herman and Marsh, while four others, whose estimates appeared to be especially trustworthy, indicated a height not much greater.

In some of the other cases I had correspondence regarding the altitude, and I found the observer so often in doubt as to the value to be assigned that I decided to depend almost entirely on those few observations which appeared definite and certain.

As to the values in the table on page 157, I may say that in calculating them no account was taken of the earth's curvature. I thought them hardly deserving such refinement, but as the correction for curvature is always additive it would have been wiser to have allowed for it.

Mr. Denning, however, has had such a long and active experience in handling meteoric observations that his interpretation of the evidence is particularly valuable.

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