

ours). Since this azimuth is given in table, p. 301), it follows that "would receive corroboration from report indicated that the observed 'dead meteors' seen at Dunnville was Dunnville observer reported (see ref. 1, p. 301). . . were traveling due east-ere coming from azimuth $W 22\frac{1}{2}^\circ$, far from "good agreement," there between the path that Wylie chose ate given in the Dunnville report, himself borne witness. On the con- nce given by both the Dunnville l as those given in the majority of counts totally rejected by Wylie, ath first determined by Chant and es by W. H. Pickering and others, the circumstances of the Canadian

resulting the extensive and readily kable meteoric display, can easily at presented here of the astound- his attempt to discredit the work s. The writer will give here no vidence, preferring rather to call esting new evidence of the correct- etation recently brought to light xander D. Mebane, of which an following paper in this issue of procedures employed by Mebane, merous detailed questionnaires he f the Institute of Meteoritics, were proved unexpectedly successful in s accounts of the Canadian fireball a which they had lain buried for conclusively discredit Wylie's inter- lian incident as an ordinary meteor contribution to the wealth of ob- g Chant's interpretation of that

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- ³ W. F. Denning, *J.R.A.S.C.*, 7, 404, 1913.
- ⁴ M. Davidson, *Jour. Brit. Astron. Assoc.*, 24, 101, 1913.
- ⁵ W. H. Pickering, *Pop. Astron.*, 30, 632, 1922, and 31, 96, 443, 501, 1923;
- W. J. Fisher, *ibid.*, 36, 398, 1928.
- ⁶ C. C. Wylie, *Science*, 118, 125 and 726, 1953.
- ⁷ C. C. Wylie, *Pop. Astron.*, 48, 306, 1940.
- ⁸ Axel Nielsen, *Meddelelser fra Ole Rømer-Observatoriet*, No. 17, 217, 1913.
- ⁹ E. J. Öpik, *Irish Astron. Jour.*, 1, 80-96, 1950. On pp. 84 and 85 of this paper, Öpik makes the following critical comments on some of Wylie's procedures: "Wylie is not content with, justly, casting doubts on the value of the velocities derived from casual observations; he undertakes to correct them *post factum*. The procedure is not justified even where average values of the velocity are concerned, unless systematic errors are derived for all the observers — which is impossible. Wylie, however, corrects individual values. . . . There is the case of the Pultusk meteorite of January 30, 1868 — one of the observers was an astronomer, another a trained army officer, with a number of other reliable observers — for which the famous German astronomer J. G. Galle found a hyperbolic velocity practically beyond doubt. . . . Wylie, not in possession of Galle's original paper, 'curtails' the observations in order to make an elliptic case of it, too."
- ¹⁰ Lincoln LaPaz, Chap. 19, *Physics and Medicine of the Upper Atmosphere*, Univ. of New Mexico Press, 1952, 354-5, 367-8, and footnote 16, 391.
- ¹¹ Lincoln LaPaz, *C.S.R.M.*, 3, 42; *P.A.*, 50, 441-2, 1942.
- ¹² J. G. Galle as translated by Walter H. Haas, *C.S.R.M.*, 3, 43-50, 51-8, 1912; 3, 124-8, 129-33, 1944; and *P.A.*, 50, 442-9, 501-9, 1912; 52, 43-7, 94-8, 1914.
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OBSERVATIONS OF THE GREAT FIREBALL PROCESSION OF 1913 FEBRUARY 9, MADE IN THE UNITED STATES*

ALEXANDER D. MEBANE

138 West 92nd Street, New York 25, New York

I. REVIEW OF PREVIOUS WORK

On the evening of Sunday, 1913 February 9, the inhabitants of an extended portion of the United States and Canada witnessed a meteoric display that, if not quite without parallel, is unquestionably preëminent of its kind. From northwest to southeast, a procession of majestically slow skyrocket-like fireballs passed over southern Ontario, burning and crumbling as they went, into clusters of smaller

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