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American Meteor Society, Inc.
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A.M.S. No. 2395

In our files are found 12 reports of an extremely brilliant fireball which appeared on the above date at 11.28 p.m., E.S.T. Out of the 12 reports 10 came from Wilmington, N.C., one from 5 miles south, one from 25 miles north, so all observers lay along a south-north line. The reports were gathered by Donald Spayhorn of Wilmington, then an active A.M.S. member. The reports were unanimous that the fireball's color was blue or green and its size excessive, estimates of the latter running from one half to three times the size of full Moon. Allowing for probable exaggeration, its apparent diameter must have approximated 15 to 20". Based on 9 estimates, the duration was 3.06 ± 0.26 sec. — a smaller average error than usual. From 9 stations the path was reported as vertical or almost so, and the beginning altitude as 45° or greater, and the end at north point at about 5° altitude. As the sidereal time was about 18.33, the right ascension of the radiant would, for a vertical path, approximate that. No information on the radiant's declination nor linear heights can be obtained from the data. Its path probably ended near the Va.-N.C. border. Evidently, however, it was not from the Lyrid radiant, but may well have come from A.M.S. fireball radiant No. 5056. Though all the usual results could not be obtained it seemed worth while to put this remarkable fireball on record.

FIREBALL of 1961 August 10.61 G.M.T.
A.M.S. No. 2294

On this date at about 8.32 p.m., C.S.T., a fireball was observed from the Chicago-Milwaukee area, and some 250 reports were gathered by the Adler Planetarium and eventually sent to A.M.S. headquarters. There has been a long delay in solving the path of the principal body to which these reports refer. A detailed study indicated that 30 or more referred to a second bright object, seen to the northeast, while, due to the date, Perseids were doubtless present in numbers and some observers did not differentiate between an ordinary meteor and the fireball in question. Despite these complications a solution has finally been obtained. Unfortunately only about 5 people tried to refer the path of end of it to stars, Uran Major being so used. All the rest depended upon estimates of both directions and altitudes, nobody seems to have used any instrument for measuring either coordinate.

A preliminary study weeded out about half of the reports as having no value for either coordinate. Further, estimates of altitudes of 60° and over were omitted, as almost nobody, without using stars as reference, can estimate such arcs with even approximate accuracy, and heights depend upon the tangents of the angle, which become abnormally great over 60°. To determine the projected path, a chart of the region was prepared, scale 1" in latitude to 1 min. On this station were plotted and azimuth lines drawn showing the observed projected starting and ending points, and in many cases intermediate. From this, despite the usual scatter, these points were derived and the projected path drawn. Then the linear height corresponding to observed altitudes were derived by measuring the distance to projected path from each station and taking the tangent of the altitude. Most did not see the beginning point, but our derived beginning height depends upon 13 usable altitudes. The end point depends upon 43 altitudes. Joining these points by a straight line gives us the atmospheric path. Other estimates could be bunched into three heights. When plotted, these fit in tolerably well with path mentioned.

While the average deviations from the mean heights certainly show larger values than we could wish, yet in percentages they compare very favorably with those all observers get when measuring stellar parallaxes, and the latter are the very basis of stellar astronomy. So we beg the indulgence of astronomers and suggest that, while in a given case the fireball path and orbit derived certainly may be considerably in error, still statistically, they may be treated with more respect.