

**COMETS AND METEORS: THEIR  
PHENOMENA IN ALL AGES;  
THEIR MUTUAL RELATIONS; AND  
THE THEORY OF THEIR ORIGIN**

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Comets and Meteors: Their Phenomena in All Ages; Their Mutual Relations; And the Theory of Their Origin by Daniel Kirkwood

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**DANIEL KIRKWOOD**

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*BY THE AUTHOR OF THIS VOLUME.*

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# METEORIC ASTRONOMY:

A TREATISE ON  
SHOOTING STARS, FIRE BALLS,  
AND AEROLITES.

By DANIEL KIRKWOOD, LL.D.

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Fig. 1.



THE SOLAR SYSTEM.

[Frontispiece.]

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THEORY OF THEIR ORIGIN.

BY

DANIEL KIRKWOOD, LL.D.,

PROFESSOR OF MATHEMATICS IN INDIANA UNIVERSITY, AND AUTHOR OF "METEORIC ASTRONOMY."



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## P R E F A C E.

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THE origin of meteoric astronomy, as a science, dates from the memorable star-shower of 1833. Soon after that brilliant display it was found that similar phenomena had been witnessed, at nearly regular intervals, in former times. This discovery led at once to another no less important, viz. : that the nebulous masses from which such showers are derived revolve about the sun in paths intersecting the earth's orbit. The theory that these meteor-clouds are but the scattered fragments of disintegrated comets was announced by several astronomers in 1867 :—a theory confirmed in a remarkable manner by the shower of meteors from the *débris* of Biela's comet on the 27th of November, 1872.

To gratify the interest awakened in the public mind by the discoveries here named, is the main design of the following work. Among the subjects considered are, cometary astronomy ; aerolites, with the phenomena attending their fall ; the most bril-