

**THE ELEMENTS OF THE
CONIC SECTIONS: WITH
THE SECTIONS OF THE
CONOIDS**

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The Elements of the Conic Sections: With the Sections of the Conoids by James Devereux
Hustler

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BY
JAMES DEVEREUX HUSTLER, B.D., F.R.S.,
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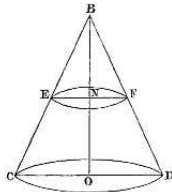
It has been the Editor's object in these Elements to provide short and easy proofs of all the Propositions in Conics which are required for NEWTON'S PRINCIPIA. The method of deriving the chief properties of the Ellipse and Hyperbola directly from the Cone was communicated to the Royal Society in 1843 by SIR FREDERICK POLLOCK, F.R.S., and is here introduced with his permission.

THE
ELEMENTS
OF THE
CONIC SECTIONS.

On the Parabola.

DEFINITIONS.

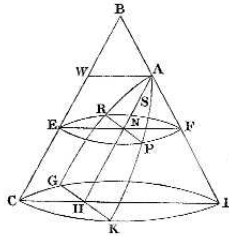
1. THE solid generated by the revolution of a right-angled triangle BOC about either of its sides BO as an axis, is a *Right Cone*.



SCHOLIUM. The other side CO describes a circle COD , whose center O is in the axis BO , and to whose plane the axis is perpendicular. So also any other

line NE parallel to OC in the revolving triangle describes a circle having its center N in the axis, and its plane perpendicular to the axis. Hence conversely, every section of the Cone perpendicular to the axis is a circle, having its center in the axis.

2. If a right cone be cut by a plane AGK which is parallel to a plane touching the cone along the slant side BC , the section AGK is called a *Parabola*.



3. If BCD be that position of the revolving triangle which is perpendicular to the cutting plane AGK , their common section AH , which is parallel to BC (Eucl. 16. XI.) is called the *Axis* of the Parabola, and the point A , the *Vertex*.

4. If AW be drawn parallel to CD , and a point S be taken in the axis AH , so that $4AS$ may be a third proportional to BW and AW , the point S is called the *Focus*.