

EF. (*Proposition*

nal to EF, (*Con-*
is), the two sides
each to each.

gle DEF. (*Hy-*

base DF. (*Pro-*

le DEF. (*Pro-*

s, each to each,

the angle EFD.

le BCA. (*Hy-*

al to the angle

triangle AHC,
BCA, which is

that is, BC is
(*thesis.*)

o the two, DE,

angle DEF.

the base DF.

the third angle

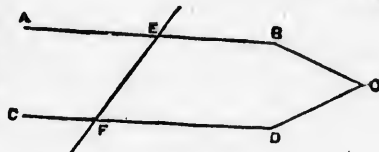
s, &c. (*See*

ines make the
straight lines

h falls upon
nate angles

SEQUENCE.—AB shall be parallel to CD.
HYPOTHESIS.—(II.) For, if they be not parallel, AB and CD being produced,

will meet either towards B, D, or towards A, C; let them be produced, and meet towards B and D in the point G.



DEMONSTRATION.

- 1. Now, by *Hypothesis II.*, GEF is a triangle.
2. And its exterior angle, AEF, is greater than the interior and opposite angle, EFG (*Prop. 16, Book I.*)
3. But the angle, AEF, is also equal to EFG (*Hypothesis*), which is impossible.
4. Therefore AB and CD being produced, do not meet towards B, D.
5. In like manner it may be shewn that they do not meet towards A, C.
6. But those straight lines which meet neither way, though produced ever so far, are parallel to one another. (*Def: 35.*)
7. Therefore AB is parallel to CD.

CONCLUSION.—Wherefore if a straight line, &c. (*See Enunciation.*) Which was to be shewn.

PROPOSITION 28.—THEOREM.

If a straight line falling upon two other straight lines make the exterior angle equal to the interior and opposite upon the same side of the line, or make the interior angles upon the same side together equal to two right angles, the two straight lines shall be parallel to one another.

HYPOTHESIS.—Let the straight line EF, which falls upon the two straight lines, AB, CD, make,

1. The exterior angle, EGB, equal to the interior and opposite angle, GHD, upon the same side;
2. Or make the interior angles on the same side, the angles BGH, GHD, together equal to two right angles.

SEQUENCE.—AB shall be parallel to CD.

DEMONSTRATION.—(I.) 1. Because the angle EGB is equal to the angle GHD, (*Hypothesis 1.*)

2. And the angle EGB is equal to the angle AGH, (*Prop. 15, Book I.*)