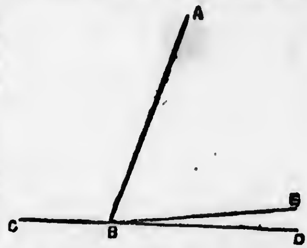
make the adjacent angles ABC, ABD, together, equal to two right angles.

SEQUENCE.—BD shall be in the same straight line with BC.

(FALSE HYPOTHESIS.)—For if BD be not in the same straight line with BC, let BE be in the same straight line with it.



DEMONSTRATION.—1. Now, because the straight line AB makes, with the straight line CBE upon one side of it, the angles ABC, ABE, these angles are, together, equal to two right angles. (*Prop.* 13, *Book* I.)

2. But the angles ABC, ABD, are also together equal to two right angles. (*Hypothesis.*)

3. Therefore the angles ABC, ABE, are equal to the angles ABC, ABD. (*Axiom* 1.)

4. Take away the common angle ABC.

5. The remaining angle ABE, is equal to the remaining angle ABD, (*Axiom* 3,) the less angle equal to the greater, which is impossible.

6. Therefore BE is not in the same straight line with BC.

7. And, in like manner, it may be demonstrated, that no other straight line can be in the same straight line with BC, but BD.

8. Therefore BD is in the same straight line with BC.

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

PROPOSITION 15.—THEOREM.

If two straight lines cut one another, the vertical, or opposite angles shall be equal.

HYPOTHESIS.—Let the two straight lines AB, CD, cut one another in the point E.

SEQUENCE. — The angle AEC shall be equal to its opposite angle DEB, and the angle CEB to its opposite angle AED.