8. Therefore the sides BA and AC are greater than BC, the third side.

9. In the same manner it may be demonstrated, that the sides AB BC are greater than CA, and BC CA greater than AB.

CONCLUSION.—Therefore any two sides, &c. (*See Enunciation.*) *Which was to be shewn.*

PROPOSITION 21.—THEOREM.

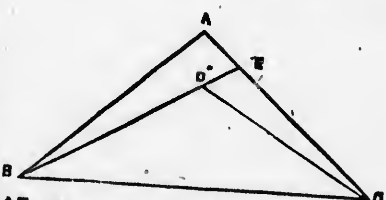
If from the ends of the side of a triangle there be drawn two straight lines to a point within the triangle, these shall be less than the other two sides of the triangle, but shall contain a greater angle.

HYPOTHESIS.—Let ABC be a triangle, and from the points B and C, the ends of the side BC, let the two straight lines BD, CD, be drawn to the point D within the triangle.

SEQUENCE.—1. BD DC, shall be less than the sides BA AC of the triangle BAC.

2. But BD DC shall contain an angle, BDC, greater than the angle BAC.

CONSTRUCTION.—Produce BD to E.



DEMONSTRATION.—(I.) 1. Because two sides of a triangle are greater than the third side (*Prop.* 20, *Book* I.), the two sides BA AE of the triangle BAE are greater than BE.

2. Add, to each of these, EC.

3. Therefore the sides BA, AC, are greater than BE, EC. (*Axiom* 4.)

4. Again, because the two sides CE, ED, of the triangle CED, are greater than CD. (*Prop.* 20, *Book* I.)

5. Add to each of these DB.

6. Therefore the sides CE, EB, are greater than the sides CD, DB. (*Axiom* 4.)

7. But it has been shewn that BA, AC, are greater than BE, EC. (*Demonstration* 3.)

8. Therefore much more are BA, AC, greater than BD, DC.

DEMONSTRATION.—(II.) 1. Again, because the exterior angle of a triangle is greater than the interior and opposite