PROPOSITION 8.—THEOREM.

If two triangles have two sides of the one equal to two sides of the other, each to each, and have likewise their bases equal, the angle which is contained by the two sides of the one shall be equal to the angle contained by the two sides, equal to them, of the other.

HYPOTHESIS.—Let ABC, DEF, be two triangles which have,

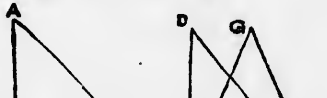
1. The two sides AB, AC, equal to the two sides DE, DF, each to each, viz.: AB equal to DE, and AC equal to DF.
2. And the base BC equal to the base EF.

SEQUENCE.—The angle BAC shall be equal to the angle EDF.

DEMONSTRATION—1. For if the triangle ABC be applied to DEF,

2. So that the point B may be on E, and the straight line BC on EF,

3. The point C shall coincide with the point F, because BC is equal to EF. (*Hypothesis* 2.)



4. Therefore BC, coinciding with EF, BA and AC shall coincide with ED and DF.

5. For if the base BC coincide with the base EF,

6. But the sides BA, AC, do not coincide with the sides ED, DF, but have a different situation, as EG, GF,

7. Then upon the same base, and upon the same side of it, there can be two triangles, which have their sides terminated in one extremity of the base equal to another; and likewise their sides, which are terminated in the other extremity.

But the impossibility of this statement has been shewn in Proposition 7.

8. Therefore, if the base BC coincide with the base EF, the sides BA, AC, must coincide with the sides ED, DE.