6. AD is therefore parallel to BC.

CONCLUSION.—Wherefore, equal triangles, &c. (*See Enunciation.*) *Which was to be done.*

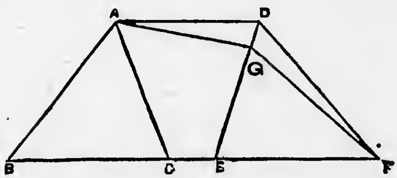
PROPOSITION 40.—THEOREM.

Equal triangles upon equal bases in the same straight line, and towards the same parts, are between the same parallels.

HYPOTHESIS.—Let the equal triangles ABC, DEF, be upon equal bases BC, EF, in the same straight line BF, and towards the same parts.

SEQUENCE.—The triangles, ABC, DEF, shall be between the same parallels; *or, in other words*—Join AD, AD shall be parallel to BF.

CONSTRUCTION.—1. For if AD is not parallel to BF, through A draw AG parallel to BF. (*Prop.* 31, *Book* I.)



2. Join GF.

DEMONSTRATION.—1. The triangle ABC is equal to the triangle GEF, because they are upon equal bases, BC, EF, and between the same parallels BF, AG. (*Prop.* 38, *Book* I.)

2. But the triangle ABC is equal to the triangle DEF. (*Hypothesis.*)

3. Therefore also the triangle DEF is equal to the triangle GEF (*Axiom* 1), the greater equal to the less, which is impossible.

4. Therefore AG is not parallel to BF.

5. And in like manner it can be demonstrated that there is no other parallel to it but AD.

6. AD is therefore parallel to BF.

CONCLUSION.—Wherefore equal triangles, &c. (*See Enunciation.*) *Which was to be shewn.*

PROPOSITION 41.—THEOREM.

If a parallelogram and a triangle be upon the same base, and between the same parallels, the parallelogram shall be double of the triangle.

HYPOTHESIS.—Let the parallelogram ABCD, and the