CHAPTER II.

STATICS.

Taking the definition of the subject of Statics as given in the last chapter, it is seen that the consideration of motion does not enter into statical problems. It may be said, however, that although the analysis of motion produced or the tendency to produce motion does not constitute a part of the subject of Statics, it is often very convenient to examine the motion, or tendency to produce motion, in order that the properties of a given force or set of forces may be intelligently obtained.

The only forces considered in this treatise are coplanar forces, or forces acting in one plane.

It is advisable, before attempting the discussion of statical problems, that the student familiarize himself with the meanings of the terms given below:—

Magnitude.—A property which admits of being measured. Quantities having this property may be relatively compared.

Direction.—The common idea of direction is in reality compounded of two ideas, viz.: The line along which a certain manifestation may take place, or along which one body lies relative to another body; and which **way** along the line the manifestation takes place, or the one body lies relative to the other body. Direction, in the following pages, will be understood to mean merely the line along which action is manifested; concisely, **line of action.**

Sense.—One of two **ways** in which a magnitude may be described or generated along a direction.

This distinction between Direction and Sense is more clearly seen by examples:—

A body is said to move vertically upward; i.e., the body moves in the vertical direction with an upward sense.

A building is said to lie east of another building; i.e., the first building lies in the direction of a parallel of latitude relative to the other building, and in an easterly sense.

A Vector.—A line conceived to have fixed length and direction in space, but whose position is not limited; i.e., the line may be drawn anywhere.