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PREFACE.

GEOMETRICAL Drawing consists, as the name implies, in the application of Geometry to Drawing.

The methods employed are for the greater part capable of rigid proof, and although the construction only is given in the text, the student should in all cases understand the method as well as execute the drawing.

The problems are especially selected as a preparation for the study of Descriptive Geometry and as an Introduction to Kinematic Drawing and Machine Design. The dotted lines in the drawings represent construction lines. These should be replaced by the student as light but continuous pencil lines. The full lines represent either what is given or what is required. The student should make the latter somewhat heavier than the former and both much heavier than the construction lines. It is an excellent practice to "ink-in" the given and required lines, making the latter thicker than the former. The inking-in should be done with Indian ink and a drawing pen. All drawings should be made on light cartridge paper and should be executed with the greatest possible neatness and accuracy.

The instruments required are the following:—

A small drawing board and pins; compasses with pencil point; a

straight-edge; a 3 H. or 4 H. drawing pencil and rubber eraser. For inking-in a drawing pen and a pen point for the compasses are required.

The drawing board should not be larger than 20" x 28". The Sloyd board answers the purpose excellently. The pencil point to the compasses should be of 3H or 4H hardness and always kept quite sharp. The steel point should be as sharp as a needle.

The edge of the straight edge should be $\frac{1}{16}$ th. of an inch thick, not bevelled. It need not be more than 6" long. After some progress has been made in the work, a small T square and a set square may be used to advantage, but should not be employed at first. A set square will, however, generally be the most convenient form of straight edge to use.

This compilation has been used in manuscript during one term in the Faculty of Applied Science, McGill University, under the direction of Prof. C. B. Smith, to whom the author's thanks are due for assistance in the selection of the problems and revision of the copy.

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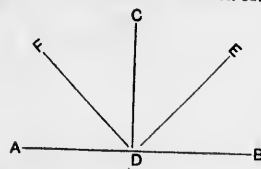
McGILL COLLEGE, MONTREAL,
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DEFINITIONS.

A point has position in space but is without magnitude.

A line has length but is without breadth or thickness.

A straight line is the shortest distance between two points and a curved line has its direction continually changing.



A vertical line is perpendicular to the horizontal and would be represented by a line in the position CD.

A horizontal line is a level line parallel to the horizon and would be represented by a line in the position AB.

A perpendicular line is one which forms right angles with another but is not necessarily vertical. CD is perpendicular to AB and ED is perpendicular with reference to FD.

Parallel lines are situated in the same plane and are everywhere the same distance from one another.

A rectilineal figure is a plane figure bounded by any number of straight lines.

The term polygon is usually applied to figures having more than four sides. Five-sided figures are called pentagons; six-sided, hexagons; seven-sided, heptagons; eight-sided, octagons; nine-sided, nonagons; ten-sided, decagons; eleven-sided, undecagons; and twelve-sided figures, duodecagons.

Regular polygons are figures having equal sides and equal angles.

NOTE.—A large number of the usual definitions have been omitted as they are without doubt well known to all who are likely to use this book.

Entered according to Act of Parliament, in the year 1896, in the office of the Minister of Agriculture, Ottawa, by C. H. McLeod.