

- XVII. To draw various loci.
- XVIII. Copying a drawing.
- XIX. " "
- XX. " "

The drawings for Plates XVIII, XIX and XX will be principally parts of machinery, and will sometimes be colored.

Exercises.—Nil.

Subjects for each examination.—There will only be one examination, in June, and problems based on the obligatory and voluntary courses will be set.

Marks—For work during term.....	260
" For examination, June.....	240
Total .....	500

III CLASS.—DESCRIPTIVE GEOMETRY.—(OBLIGATORY.)

Subjects.—Object of descriptive geometry. Necessity for some means of representing points, lines, plains, etc., lying in space on a plane sheet of paper. Explanation of the two methods of doing this, namely the two-plane and indice method. Reasons why indice method is more suitable for fortifications. (N.B.—The problems in the obligatory course will therefore be worked by the indice method.)

Definition of the following terms.—Plane of projection, projector, projecting plane of a straight line, ground line, projection of a point or a straight line, plan, elevation, end view, unit, index of a point, figured plan of a point or a straight line, horizontals of a plane and scale of slope of a plane, line of quickest descent, trace of a straight line, of a plane, contour projection of a plane angle, inclination of a straight line to a plane, dihedral angle contained by two planes, usual meaning of inclination of a straight line, inclination of a plane.

NOTATION.

Theorems of solid geometry required for the prosecution of the subject; stated only.

Proof of the following theorems and deductions therefrom:

I. The plan or elevation of any point must lie in a straight line, at right angles to the ground line.

II. The distance of the elevation of any point from the ground line is equal to the difference of level between the point and the horizontal plane containing the ground line.

III. The length of the projection of any finite straight line on any plane is equal to the length of the finite straight line multiplied by the cosine of the angle of inclination of the straight line to the plane.

*Fundamental Problems—1 to 23.*

1. To find the elevation of a point on any given ground line from its figured plane.

2. To find the elevation of a given straight line on any ground line.

Corollaries: (a) To find the true length of a finite straight line. (b) To find the inclination of a given straight line.

3. To find the figured plan of a straight line given. (a) The angle of inclination.

(b) The true length and the difference of level between two points.

4. To find the vertical trace of a plane on a ground line parallel to the scale of slope.

Corollary. To find the angle of inclination of a given plane.

5. To find the scale of slope of a plane of given inclination.