

45. A ladder slips down between a vertical wall and a horizontal plane : what is the locus of its middle point ?

46. ABC is a line drawn from a point A , without a circle, to meet the circumference in B and C . Tangents are drawn to the circle at B and C which meet in D . What is the locus of D ?

47. The angular points A, C of a parallelogram $ABCD$ move on two fixed straight lines OA, OC , whose inclination is equal to the angle BCD ; shew that one of the points B, D , which is the more remote from O , will move on a fixed straight line passing through O .

48. On the line AB is described the segment of a circle in the circumference of which any point C is taken. If AC, BC be joined, and a point P taken in AC so that CP is equal to CB , find the locus of P .

49. The centre of the circle $CBED$ is on the circumference of ABD . If from any point A the lines ABC and AED be drawn to cut the circles, the chord BE is parallel to CD .

50. If a parallelogram be described having the diameter of a given circle for one of its sides, and the intersection of its diagonals on the circumference, shew that the extremity of each of the diagonals moves on the circumference of another circle of double the diameter of the first.

51. One diagonal of a quadrilateral inscribed in a circle is fixed, and the other of constant length. Shew that the sides will meet, if produced, on the circumferences of two fixed circles.

Book II

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