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Review

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"In the other case the locus is a cubic. Find its asymptote. Trace the two curves. Explain how it is that there are two signs.

"(iii) Suppose the segments to be equal and to lie on two parallel straight lines. Take a parallel to the two segments as the axis of  $x$ , and as origin the point to which they are symmetrical. Consider the case in which  $Oy$  bisects the segments. Trace the curve. Show how by the principle of continuity it may be derived from case (ii). Treat in the same way the case in which  $Oy$  does not bisect the segments. Show how the system composed of the straight line and circle found above gives a cubic properly so-called (like an  $S$  with two asymptotic branches). As a limiting case suppose the segments on the same straight line: in this case we take them of unequal length.

"(iv) Suppose the equal segments to be on two perpendicular lines, but no longer at the same distance from the origin. The figure represents the curve obtained. Determine the direction and position of the asymptotes. From this curve exhibit the preceding curves as particular cases. Taking the segments as equal simplifies materially the work and does not affect the generality of the solutions. Finally remove the restriction  $\hat{BOB}' = 90^\circ$ . The shape of the curves is not thereby altered."

From the table of contents we take the following: Tracing of curves; curves constructed by the aid of simple curves; the triangle and quadrilateral; articulated polygons; homographic transformations; inversion; transformations by means of the square and the jointed rhombus; transformations by means of imaginaries; displacement of an invariable figure; displacement of a moving plane defined by the displacement of a line, equipotential lines and surfaces; lines of force; Roberval's transformation; reciprocal polars; problems on differential equations and integrals; volumes and areas; finite differences; recurrence; approximations; probabilities. The diagrams are beautifully drawn, and the book is printed in large type and on excellent paper. The price (18 frcs.) is net—we notice this, as it is unusual to find a French price stated as net.

**A Text-Book of Mathematics and Mechanics.** By C. A. A. CAPITO. Pp. xv+398. 12s. 6d. net. 1913. (Griffin & Co.)

Mr. Capito's *Text-book of Mathematics and Mechanics* is "specially arranged for the use of students qualifying for Science and Technical Examinations." It begins with Analytical Geometry, runs through the Calculus, and closes with Mechanics and Hydrostatics—all within some 400 well printed and clearly spaced pages. A knowledge of elementary mechanics is assumed, with a sound complement of Geometry, Algebra, and Plane Trigonometry. A feature of the book is the large number (250) of questions taken from the Qualifying Examination of the Mechanical Science Tripos, that of the Associate Membership of the Institution of Civil Engineers, etc., and worked out in full. The expository power of the author is considerable, and the engineering student who has carefully gone through the book will have nothing to unlearn. We fear, however, that the price of this volume (12s. 6d. net) will tell heavily against its sales.

**Cours d'Analyse de l'École Polytechnique.** By C. JORDAN. 3rd edition, revised and corrected. Vol. ii. Calcul Integral. Pp. 705. 20 frcs. 1913. (Gauthier-Villars.)

The third edition of the volume of this course dealing with the Differential Calculus appeared about four years ago. It is perhaps as well to remind those who wish to consult the second volume that the definition and fundamental properties of the definite integrals, with the fundamental notions of the infinitesimal Calculus, are dealt with in vol. i. In the new edition of vol. ii. the work of Schmidt on potential theory has enabled the author to recast the chapter on that subject and to bring it up to date. Some twenty pages are devoted to its applications in electricity and magnetism. There is also a new chapter on vector fields, introducing the student to the theorems and formulae connected with the names of Ostrogradsky, Stokes, Green, Dirichlet, and Liouville.