



## XLIX. Intelligence and miscellaneous articles

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of Spheres, Cones, Cylinders, and Pyramids, together with the "development" of the surfaces of the two last-named solids,—reference being made for other cases to the "Crystallography" of the Series—contain what is regarded as the more elementary portion of the subject. More advanced problems on the Line and Plane: on the Projections and Plane Sections of Solids: on the less easy determination of the Intersections of Solids, as exemplified by two simple cases: on the Determination of Tangent Planes to Cylinders, Cones, and Spheres: on the Projection of Shadows: on Isometric Projection, cursorily treated, and stated to be "a branch of Orthographic," which latter adjective is barely explained as "*G. orthos*, right, straight; *grapho*, I write"—for "draw:" the six cases of the Spherical Triangle: lastly, on "Horizontal Projection."

It would be unreasonable to expect that so extensive a programme could be treated with an adequate amount of demonstration within the limits prescribed to the author. Student-life is short; and it is deemed necessary to train a certain number of proficient in the correct performance of the constructions, whether "the reason why" is known or not: "*Est quidam prodire tenus, si non datur ultra.*" The diagrams inserted amidst the text are copious and generally clear; while each chapter is accompanied by a number of examples for exercise.

The second part of the volume of 48 pages, numbered anew, gives solutions of the most elementary problems of Constructive Geometry (pp. 1–10): the constructive performance of the four rules of Arithmetic, of involution and extraction of square roots (12 pp.): the representation of areas and volumes by straight lines (15 pp.): the elementary parts of "Graphical Statics" as far as the Equilibrium of Coplanar Forces and the determination of Centres of Gravity of Plane Areas: finally, a selection of Exercises taken from the Science Examination Papers "with hints and solutions" (21 pp.)—a section requiring careful revision. J. J. W.

#### XLIX. *Intelligence and Miscellaneous Articles.*

ON THE STRENGTH OF THE ELECTRICAL WAVES WHEN THE SPARK PASSES IN OIL. BY H. BAUERNBERGER.

THE author pursues the experiment of Sarassin and De la Rive and shows by quantitative measurement how in Lester's arrangement the electric resonance is increased if the primary spark passes in oil instead of in air. The investigation of different oils shows that petroleum gives the best results not only as regards the strength of the resonance, but chiefly because in it the change in the electrodes and the dielectric is least. In the preliminary experiments the influence of the capacity of the electrometer used in the measurements is investigated, and the author finds that in comparative measurements the changes in capacity of the electrometer have no influence on the changes of capacity, but that for each distance of the electrodes a definite current-strength is required to produce a maximum of electrical resonance. In conclusion it is shown that the length of the conducting wires to the primary condenser is of little influence.—*Wien. Ber.*, July 13, 1893.