Géométrie descriptive par GASPARD MONGE, *de l'institut des sciences etc. Nouvelle édition. Avec un supplément par* M. HACHETTE, *instituteur à l'école impériale polytechnique etc.* Paris, by J. KLOSTERMANN the younger. 162 and 118 pages in quarto.

Geometry, the subject of which is spatial relationships, falls into two large branches, according to whether space is viewed with only two dimensions (in the plane), or with all three dimensions at once. One easily comprehends that the latter branch by its nature must have a much larger scope, and must present a much larger diversity of questions and investigations, than the former. If therefore plane geometry already makes up a larger part of our elementary geometry than solid geometry, then this is only because the latter is relatively much less developed and accomplished. In fact, the investigations of the latter kind have in recent times been superbly handled rather with the help of analysis, and thereby so to speak deprived from geometry, which only serves direct intuition. It is also not to be denied that the benefits of the analytical method over the geometrical, its brevity, simplicity, its uniform plan, and especially its generality, usually show themselves the more decisively, the more difficult and complicated the investigations are. In the meanwhile it is however of great importance that the geometric method is also constantly cultivated. Apart from that it does in some individual cases lead more directly and shortly to the goal than analysis (especially when this is not handled with adroitness), having then an idiosyncratic elegance, it will also remain indispensable especially in the formal respect and in the earlier studies of youth, in order to prevent one-sidedness, to sharpen the sense for rigor and clarity, and to give the insight a liveliness and directness which are encouraged far less, sometimes sooner endangered, by the analytical method. For these reasons one sees with pleasure that several French geometers have in the last decades begun to cultivate with particular diligence, and, in so far as only geometrical methods are applied in doing so, as a specific discipline under the name *Géométrie descriptive,* that part of geometry which deals with the relationships of points and lines that do not lie in a plane, of different planes with each other, with space curves and with curved surfaces. To the present work on this science we must in particular ascribe the praise of a great clarity and concision in exposition, a well-ordered transition from the easier to the more difficult,

and a richness of new points of view and felicitous proofs, and therefore recommend its study as a powerful nourishment for the mind, whereby much can indisputably be imparted for the stimulation and preservation of the real geometrical spirit, otherwise sometimes missed in the mathematics of the moderns. Apart from this purely scientific side of the investigations, the diverse uses which they have in the arts that relate to spatial relationships, namely in the arts of draftsmanship, field measurement, architecture, and fortification, also come into consideration. In this respect as well the author has known to make his writing more interesting through several applications, even if he has mainly indicated more towards them than really explained them.

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