

had foretold¹ the possibility and necessity of such an independent development of pure geometry, in which the relations of position in space, as opposed to those of measure, magnitude, or quantity, would be placed in the foreground. Projection, as practised in the drawing of maps, and perspective, as practised in the fine and descriptive arts, had already revealed a number of remarkable properties of figures in the plane and in space. By continuous motion of points or lines, by artifices like throwing of shadows, by sections of solids with lines and surfaces, a vast number of problems had been solved and isolated theorems established. The method here practised was that of construction, as in analysis the method was that of calculation with subsequent interpretation. All this purely constructive work was to be brought together and systematically combined in a whole. It was evidently a distinct line of research, based upon intellectual processes other than the purely analytical method — a line which, as it seemed to its followers, had been unduly neglected and pushed into the background. Although Monge became the founder of this purely descriptive or constructive branch of geometry, he was himself equally great as an analyst; in fact, the fusion in his mind of the two methods was the origin of much of his greatest work. In attempting to carry out more thoroughly the separation or independent development of the constructive or descriptive method, his great pupil, J. V. Poncelet—whilst deprived of all literary resources

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Poncelet.

¹ See the quotations from his letters to Huygens and others given above, vol. i. p. 103 note.