

A SURVEY OF THE DEVELOPMENT OF  
GEOMETRIC METHODS.\*

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## I.

To understand thoroughly the progress made in geometry during the century which has recently closed it is necessary to glance rapidly at the state of the mathematical sciences at the beginning of the nineteenth century. It is known that in the last period of his life, Lagrange, fatigued by those researches in analysis and mechanics which have assured to him an immortal renown, began to neglect mathematics for chemistry which according to him was becoming as easy as algebra, for physics, and for philosophic speculations. This state of mind of Lagrange is almost always found at certain times in the lives of the greatest scholars. Those new ideas which have come to them in the productive period of youth, and which they have introduced into the common domain of knowledge, have yielded to them all that can be expected of them; the man has fulfilled his task, and feels the need of turning the activities of his mind toward entirely new subjects. This need, it is necessary to recollect, began to manifest itself with especial force in Lagrange's time. For at that time the programme of the investigations opened to geometers by the discovery of the infinitesimal calculus appeared to be nearly exhausted. A few differential equations more or less complicated to be integrated, a few chapters to be added to the integral calculus, and it seemed that the very limits of the science would be reached. Laplace was finishing the explanation of the system of the world and laying the foundation for molecular physics. New ways indeed were opening for the experimental sciences and were preparing for the astonishing development which those sciences were to receive during the century now closed. Am-

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