This is a review submitted to Mathematical Reviews/MathSciNet.

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Title: The birth of analytic geometry.

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Review text:

This paper is about the birth of analytic geometry in the first half of 17th century. The paper is divided into six sections: 1. Introduction, 2. The situation of mathematics at the beginning of 17th century, 3. Analytic geometry, 4. Descartes program for Geometry, 5. Descartes method to determine the normal algebraic curve, and 6. Correction of the curves. After a short introduction of the topic in which the author stresses the relevance of analytic geometry for the posterior development of infinitesimal calculus, he presents the context in the second section. In it, he describes not only the mathematical context in which analytic geometry developed, but also the way of life of mathematicians, explaining how they got funds to live and work, the role of Academies in particular that of the Invisible College, and the relation to the classics. After discussing the problems of proportion and some classical works such as Euclids, Apoloniuss and Archimedes he details the role played by immediate predecessors of Descartes and Fermat. Among these, he considers particularly relevant the role played by Stevin, Kepler, Galilei and Vite. In the third section he explains the simultaneous but independent creation of analytic geometry by Fermat and Descartes. It is very interesting how the author explains the success of Descartes because of the notation he used and the breaking with the Greek tradition due to the violation of the homogeneity principle. Also interesting in this section is Descartes reaction to Vites work, which was sent to him by Mersenne. The author considers Vites Introduction to the art of analysis as the most immediate predecessor of Cartesian analytic geometry, however Descartes seemed to

disagree, since in his reply letter he said: I have not found anything useful in it, and I dont think that anyone could learn anything from there, not to resolve every problem, not even some very simple problems. We must learn something from Descartes character from this reaction, since it is very similar to the one he had to Galileis writings on physics in 1638. Besides this, along this part, the foundations of analytic geometry are explained, particularly the idea that to every geometric problem corresponds an equation. In the last two sections, the author enters into details of the Cartesian program, with several examples and dealing with particular problems in a didactical way. Only a few paragraphs are dedicated to Fermats improvements, which are also illustrated with some examples. The paper has some typos and the section on mathematicians ways of life the second one is not historically deep, but the examples and the significance of analytic geometry are well explained.

Comments to the MR Editors (not part of the Review Text):
The expressions 'Invisible College' and 'Introduction to the art of analysis' should be written in italics