

Meeting: 1003, Atlanta, Georgia, SS 3A, AMS-MAA Special Session on History of Mathematics, I

1003-01-572 **Judith V. Grabiner*** (jgrabiner@pitzer.edu), Mathematics, Pitzer College, 1050 N. Mills Avenue, Claremont, CA 91711. *It's All for the Best: Looking for Perfection with Mathematical Models.*

Many problems, from optics to economics, are solved by finding the highest, the quickest, the shortest—the best of something. This has been true from antiquity to the present. Why did we start looking for such explanations, and how did we conclude that we could productively do so? Scientific examples will include problems from Greek optics and optimization, and more modern questions from optics and classical mechanics which draw on ideas from Newton's and Leibniz's calculus and from the calculus of variations. A surprising role will also be played by philosophical ideas, especially those of Leibniz, Maupertuis, and Adam Smith. (Received September 23, 2004)