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1050 N. Mills Avenue, Claremont, CA 91711. *It's All for the Best: Optimization in the History of
Science*. Preliminary report.

Many problems, from optics to economics, can be solved mathematically 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 ancient optics, and more modern questions in optics and classical mechanics, drawing on ideas from Newton's and Leibniz's calculus and from the Euler-Lagrange calculus of variations. A surprising role will also be played by philosophical and theological ideas, including those of Leibniz, Maupertuis, MacLaurin, and Adam Smith. (Received September 14, 2007)