

1077-E1-2390 **Maureen T. Carroll*** (carrollm1@scranton.edu), **Steven Dougherty** and **David Perkins**.
Torricelli and Robinson play Gabriel's Trumpet. Preliminary report.

Every calculus student is familiar with the improper integral that shows Gabriel's trumpet to have finite volume. What they don't often see is the clever solution by indivisibles that Torricelli used to find this volume. In this talk we discuss his solution as well as the 17th century objections to this non-rigorous but highly intuitive technique. After briefly reviewing the fundamentals of infinitesimal calculus and its rigorous footing provided by Robinson in the 1960s, we are able to revisit this 17th century solution. In changing to an infinitesimal-based argument, we manage to salvage Torricelli's beautiful intuition. (Received September 22, 2011)