1114-03-323 **John Mumma*** (jmumma@csusb.edu), CA. *Mathematical rigor, modern logic, and elementary geometry.*

The rigor of a mathematical proof is commonly thought to require that the conclusion of the proof be *logically* deducible from its premises. Such a principle underlies, for instance, the widespread assessment of Euclid's *Elements* as lacking in rigor in comparison to Hilbert's *Foundations of Geometry*. In my talk I examine the extent to which the principle is called into question by a recent analysis of Euclid's diagrammatic method in precise formal terms. The analysis points to the possibility of understanding Euclid's proofs as rigorous relative to a notion of *geometric consequence*. Accordingly, even though Euclid's conclusions are not deducible from his premises via universal rules of logic, they are deducible from his premises via rules valid in the domain of elementary geometry. (Received August 31, 2015)