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Lawrence D'Antonio* (ldant@ramapo.edu). *Newton's Headache: the Motion of the Lunar Apse*. Preliminary report.

Newton remarked to Halley that lunar theory gave him a headache. In particular the calculation of the motion of the lunar apse frustrated Newton (the lunar apse is an endpoint of the major axis of the ellipse defining the lunar orbit). The apse rotates approximately 3° per month due to solar perturbations, but Newton's calculations only showed half of this amount, leading Newton to say that the problem was "too complicated and cluttered with approximations." We examine the work of Newton on this problem and the later solution of Clairaut, Euler, and d'Alembert. (Received September 04, 2017)