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A Newtonian Theory of the Fizeau Experiment JAMES ESPINOSA<sup>1</sup>, Rhodes College, JAMES WOODYARD, West Texas A&M University — In 1965, Fox reviewed the experiments considered as evidence against Ritz's theory of emission and found almost all of them to be compatible with Ritz's theory by applying a simple modification. His critiques have been restated by some graduate textbooks such as Jackson's Classical Electrodynamics. Unfortunately, the vast majority of textbooks at the undergraduate level have entirely ignored Fox's paper. Over the past decade, we have continued the work of Ritz into gravitational and atomic phenomena with great success but now revisit some of Fox's reservations about the emission theory of electromagnetism. His most serious argument against Newtonian physics was Fizeau's experiment, which both he and Einstein considered incompatible with classical kinematics. Unknown to Fox, the Italian physicist Carlo Somigliana published a paper in 1922 reminding the physics community that this "inconsistency" had been solved 30 years before Einstein by Woldemar Voigt. We will review this important paper and discuss possible reasons for Fox's ignorance of this important contribution.

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