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Joseph Bak and Strashimir G Popvassilev* (spopvassilev@ccny.cuny.edu), Dept Math, The City College of New York, NAC 8/133, Convent Ave at 138th Street, New York, NY 10031. The Evolution of Cauchy's Closed Curve Theorem and Newman's Simple Proof. Preliminary report.

We examine the development of Cauchy's Closed Curve Theorem, including the early contributions of Clairaut, d'Alembert, Cauchy himself, Goursat, and Pringsheim, as well as more recent approaches due to Ahlfors, Rudin and others. A particularly simple proof was given by D.J. Newman, utilizing his original definition of a simply-connected region in the (complex) plane. We show that this definition is equivalent to the other, more familiar definitions of simple-connectedness so that Newman's approach offers an alternative and very elegant proof of the general result. (Received September 16, 2014)