1135-11-1674 **Michael J. Mossinghoff*** (`mimossinghoff@davidson.edu`), Davidson College, Davidson, NC 28035, and **Timothy S. Trudgian**, University of New South Wales, Canberra. *The Liouville function and the Riemann hypothesis.*

The Liouville function $\lambda(n)$ is the completely multiplicative arithmetic function defined by $\lambda(p) = -1$ for each prime p. Pólya investigated its summatory function $L_0(x) = \sum_{n \le x} \lambda(n)$ and Turán studied a weighted relative $L_1(x) = \sum_{n \le x} \lambda(n)/n$. Each noted that the Riemann hypothesis would follow if one of these functions never changed sign for large x. While it has been known since the work of Haselgrove in 1958 that these functions do change sign infinitely often, oscillations in these functions and their relatives remain of interest, since the Riemann hypothesis would follow if their oscillations could be bounded in a particular way. We describe a method involving substantial computation that establishes improved bounds on the magnitude of oscillations in the generalized family of functions $L_\alpha(x) = \sum_{n \le x} \lambda(n)/n^\alpha$ with $\alpha \in [0, 1/2) \cup (1/2, 1]$. (Received September 24, 2017)