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Kevin G Milans* (milans@math.wvu.edu). *Monotone paths in dense edge-ordered graphs.*

In a graph whose edges are are totally ordered, a *monotone path* is a path that traverses edges in increasing order. Let $f(G)$ be the minimum, over all total orderings of $E(G)$, of the maximum length of a monotone path in G . In 1973, Graham and Kleitman proved that $f(K_n) \geq (\sqrt{4n-3} - 1)/2$. The best known upper bound on $f(K_n)$ is due to Calderbank, Chung, and Sturtevant, who proved that $f(K_n) \leq (\frac{1}{2} + o(1))n$ in 1984. We show that $f(K_n) \geq \Omega((n/\log n)^{2/3})$. (Received January 19, 2016)