1106-11-58 **Steven J Miller*** (sjm1@williams.edu), 18 Hoxsey Street, Williams College, Williamstown, MA 01267, and **Francesco Cellarosi**, **Doug Hensley** and **Jake Wellens**. *Continued Fraction Digit Averages and Maclaurin's Inequalities.*

Khinchin proved that for almost all real α the geometric mean of the first n digits $a_i(\alpha)$ in its continued fraction expansion converges to $K = 2.68545\dots$ (Khinchin's constant) as $n \to \infty$. On the other hand, for almost all α the arithmetic mean of the first n continued fraction digits $a_i(\alpha)$ approaches infinity as $n \to \infty$. There is a sequence of refinements of the AM-GM inequality, Maclaurin's inequalities, relating the $1/k^{\text{th}}$ powers of the k^{th} elementary symmetric means of n numbers for $1 \le k \le n$. On the left end ($k = n$) we have the geometric and on the right end ($k = 1$) we have the arithmetic mean. We analyze the means of continued fraction digits of a typical real number in the limit as one moves $f(n)$ steps away from either extreme. We prove sufficient conditions on $f(n)$ to ensure divergence when one moves $f(n)$ steps away from the arithmetic mean and convergence when one moves $f(n)$ steps away from the geometric mean. For typical α we conjecture the behavior for $f(n) = cn$, $0 < c < 1$, and prove bounds towards these claims. We also study the limiting behavior of such means for quadratic irrationals, providing rigorous results and numerically supported conjectures. (Received June 04, 2014)