1014-05-1403 **Sarah H Holliday*** (sarah.holliday@gmail.com), 424 Humanities Building, Martin, TN 38238, and **Sally A Clark**, **John E Holliday**, **Peter D Johnson**, **Janet E Trimm**, **Robert R Rubalcaba** and **Matthew P Walsh**. *Notes on the Villainy of a Graph.* Preliminary report.

Given a simple graph $G$ on $n$ vertices, and given a proper coloring of $G$ using k $= \chi(G)$ colors, written as an $n$-vector $v$, we consider the set $S(v, G)$ of $n$-vectors which are permutations of $v$. For each element $u$ of $S(v, G)$, we define the *villainy of $u$ with respect to $G$*, denoted $b(u, G)$, to be the minimum number of components of $u$ that must be permuted so that the resulting $n$-vector again represents a proper coloring of $G$. Then let $S(G) = \bigcup S(v, G)$, where the union is taken over all proper colorings $v$, and define the *Villainy of $G$*, denoted $B(G)$, as the supremum over $S(G)$ of $b(u, G)$. (Received September 28, 2005)