In 2005 Cameron and Walker classified all finite simple graphs $G$ such that the matching number of $G$, $m(G)$, is equal to the induced matching number of $G$, $i(G)$. We call such graphs Cameron-Walker graphs. This class of graphs is of particular interest to algebraists as these graph theoretic invariants provide upper and lower bounds for the Castelnuovo-Mumford regularity of the ring $R/I(G)$, where $R$ is the polynomial ring in $|V(G)|$ variables and $I(G)$ is the edge ideal of $G$. Here we explore other properties of the edge ideals of Cameron-Walker graphs such as (sequentially) Cohen-Macaulayness, (pure) shellability, and (pure) vertex decomposability. (Received January 27, 2014)