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Right artinian right serial rings.

Let R be an indecomposable right artinian ring, $S = \{e_\alpha : \alpha \in G\}$ be a basic, orthogonal set of indecomposable idempotents in R . The index set G becomes a connected digraph. For each $\alpha \in G$, set $R_\alpha = e_\alpha R e_\alpha$, $J_\alpha = e_\alpha J e_\alpha$ and for each edge $\alpha \rightarrow \beta$ in G , set $M_{\alpha\beta} = e_\alpha R e_\beta$. Suppose R is right serial, then the following hold: (i) Each R_α is right artinian right serial (ii) each $M_{\alpha\beta} = e_{\alpha\beta} R_\beta$ for some $e_{\alpha\beta} \in J \setminus J^2$ (iii) if $\alpha \rightarrow \beta$, $\alpha \rightarrow \gamma$ in G , then $\beta = \gamma$. If G contains a cycle, we denote by $G_0 : 1 \rightarrow 2 \rightarrow \dots \rightarrow n \rightarrow 1$ (iv) If an $\alpha \in G \setminus G_0$, then R_α is a division ring, (v) for an $\alpha \in G_0$, there exists a b_α such that $J_\alpha = b_\alpha R_\alpha$, and for any edge $\beta \rightarrow \gamma$ in G_0 , $b_\beta e_{\beta\gamma} = e_{\beta\gamma} b_\gamma$. By using this system, a method to construct right artinian right serial rings is developed. (Received August 16, 2012)