1077-H1-1036 **Andrew J Simoson*** (ajsimoso@king.edu), King College, Mathematics Department, 1350 King College Road, Bristol, TN 37620, and **Ilhan M Izmirli**. *Al-Maghribi meets Sudoku.*

The sixteenth century Algerian mathematician Al-Maghribi posed what he called the *Mecca problem* in the appendix to his book on algorithms and algebra. A landowner $\mathcal{L}$ has 81 trees numbered 1 through 81; tree-$i$ produces $i$ baskets of fruit each season. How can $\mathcal{L}$ partition the 81 trees among his 9 sons so that each one receives 9 trees and an equal number of baskets of fruit each seaon from those trees? We show how Al-Maghribi may have generated his solution, and demonstrate that the underlying structure is a completed Sudoku puzzle. Furthermore, any completed Sodoku puzzle gives rise to a solution to the Mecca problem (so called because it was a puzzle to do while on pilgrimage to Mecca). (Received September 15, 2011)