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Auxiliary astronomical tables were a substantial and extensive tradition in medieval Islam, beginning as early as the 9th century. These tables, computing functions that are more complicated than primitive trigonometric quantities but with no direct astronomical application, arise naturally in the context of spherical astronomy where solutions to different problems often share mathematical elements. We are fortunate to have two treatises with the same title — the *Tabulae primi mobilis* — that allow us to trace the gradual birth of the idea of auxiliary tables in the works of their European inventor, the Italian astronomer Giovanni Bianchini, leading to their fullest realization in his *Tabulae magistrales*. Repeating the evolution in medieval Islam, one of these original auxiliary tables evolved into what we now call the tangent function. Regiomontanus copied Bianchini's idea in his *Tabulae directionum* but took the notion much further in his single giant auxiliary table, his *Tabula primi mobilis*, a table whose idea would be rediscovered several times in following centuries. We shall trace the development of auxiliary tables from its European origin in the 15th century through the end of the 16th century. (Received August 08, 2020)