

1135-01-1355 **Elizabeth Cornwall*** (ecornwall@dixie.edu). *Shadow Tables and the Origins of the Tangent Function.*

Measuring shadows was of critical importance to many early cultures and were used to keep track of time, determine the altitude of the sun, among other practical applications. Their use in time keeping was particularly vital to Islamic near eastern cultures who created tables of shadows using different gnomon lengths which were included in their astronomical handbooks, or *zīj*es.

Modern scholars have found similarities between these shadow tables and our modern-day tangent and cotangent functions. Some even call them tangent tables. My talk will survey various key Arabic sources written in the 9th – 13th centuries which include tables and discussions of shadow lengths. In particular, I will examine a table of shadow lengths and investigate some of its features and the information we can draw from it. From that, I will explore some approaches modern historians have used to explain these table values and whether or not it is appropriate to label them as the tangent values resulting from the tangent function. (Received September 21, 2017)