1106-01-245 **David R Bellhouse*** (bellhouse@stats.uwo.ca), Dept of Statistical and Actuarial Sciences, University of Western Ontario, London, Ontario N6A 5B7, Canada. *Table Parameter Estimation and Inference in Historical Mathematical Tables.*

The construction of a medieval Islamic astronomical table can depend on parameter values that are often unknown to us today. Estimation of these unknown parameters can indicate the school to which the astronomer who created the table belonged. Three estimation techniques have been used by past historians: least squares, least absolute deviations and least number of errors. These techniques are compared through an examination of the assumptions underlying each technique and through an actual case of parameter estimation in the thirteenth-century Islamic solar equation table from the Zamil Zīj. In terms of the model assumptions that underlay the estimation techniques, the dictum of the statistician George Box is followed, "Essentially, all models are wrong, some are useful." In terms of data analysis, it is suggested that what analysts of these tables should be striving for is simplicity and ease of interpretation of the results. Either least squares or the least absolute deviations criterion is a reasonable criterion to use unless there some unusually large calculated deviations from the given table; in that case least absolute deviations would be preferred since less weight is given to the anomalous values. (Received August 14, 2014)