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Patricia Baggett* (baggett@nmsu.edu), Department of Mathematical Sciences, MSC 3MB P.O. Box 30001, New Mexico State University, Las Cruces, NM 8800380001, and **Andrzej Ehrenfeucht** (andrzej.ehrenfeucht@colorado.edu), Computer Science Department, University of Colorado, Boulder, CO 80309-0430. *Mathematical properties of decimal counting boards.*

A decimal counting board is a rectangular array in which each location has a numerical value. Values in columns and rows are positive rational numbers that form geometric progressions with quotients two and five. (The first rectangular counting board in which rows and columns were geometric progressions was described by John Napier in his *Rabdology*, published in 1617.) Such boards can be used to introduce positive and negative finite decimals and operations on them in elementary grades. Basic mathematical properties of the boards and some examples of arithmetic algorithms executed on them will be presented. Some open problems in the complexity of algorithms and Diophantine equations concerning such boards will be discussed. (Received August 29, 2014)