1125-11-1783 **Evan P. Dummit*** (`evan.dummit@gmail.com`), 915 Hylan Building, University of Rochester, Rochester, NY 14627, and **David S. Dummit** and **Hershy Kisilevsky**. *Characterizations of Quadratic, Cubic, and Quartic Residue Matrices.*

A recent paper of D. Dummit, Granville, and Kisilevsky showed the existence of unusually large biases in a number of prime-counting problems. While investigating this phenomenon, the following question arose: given n odd primes $p_1, ..., p_n$ where p^* denotes $(-1)^{(p-1)/2}p$, how many possible configurations are there for the splitting behavior of p_i in $\mathbb{Q}(\sqrt{p_j^*})$ for the possible pairs (i, j)? A natural way to organize this information is via the "quadratic residue matrix" of Legendre symbols $\frac{p_i}{p_j}$, which is a seemingly natural object that does not appear to have been previously studied. In my talk, I will give a simple characterization of these quadratic residue matrices along with natural generalizations to the cubic and quartic cases. (Received September 19, 2016)