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I will describe a new bijective derivation of a result of Stanley which states that the Ehrhart polynomial of a unimodular zonotope is a specialization of the Tutte polynomial, using circuit reversal classes of orientations of the associated regular matroid. In the limit under dilation (with appropriate scaling) we obtain a tiling of the zonotope by volume 1 parallelepipeds. We use this new description of zonotopal tilings to produce efficiently computable orientation-based geometric bijections between the Jacobian of a regular matroid and its bases. These bijections are similar to ones discovered earlier by Shokrieh. We then prove that the circuit-cocircuit reversal classes are a natural torsor for the Jacobian and apply our results to produce a new algorithm for sampling bases of a regular matroid. (Received August 29, 2016)