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**Timothy Prescott\*** ([timothy.prescott@und.edu](mailto:timothy.prescott@und.edu)), UND Mathematics Department, Witmer Hall 313, 101 Cornell Street Stop 8376, Grand Forks, ND 58202-8376. *Shape Theorems For Evolving Sets on Two Dimensional Lattices.*

Evolving sets are dual to random walks on a lattice, allowing the underlying geometry to aid intuition about the original walk. Local limit laws show that two dimensional random walks have transition probabilities that are eventually circular, leading one to expect a two dimensional evolving set to be eventually circular as well. We prove, however, that on three common lattices, the shape is always a semi-regular polygon, and we show that the limiting law defining this polygon is given by a two parameter stochastic diffusion. (Received September 14, 2010)