In 1980, van Dommelen and Shen provided a numerical simulation that predicted generation of a singularity in the Prandtl boundary layer equations from a smooth initial datum, for a nontrivial Euler background flow. We will provide a proof of this conjecture by rigorously establishing the finite time blowup of the boundary layer thickness. We will also survey available local and global existence results. (Received January 26, 2019)