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Using a model derived from lubrication theory, we consider the evolution of a thin viscous film, driven by surface tension and gravity, that coats the interior or exterior of a cylindrical tube. We use large-time simulations of the flow to identify the possible capillary equilibria in horizontal tubes, and to investigate the bifurcation structure of these solutions as the tube length is varied. We identify new solutions, and demonstrate hysteresis in the transition between "rivulet" and "annular collar" type solutions as the tube length is varied. (Received January 20, 2008)