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Henry C. Wente* (hwente@math.utoledo.edu), Department of Mathematics, University of Toledo, 2801 Bancroft Street, Toledo, OH 43606. *Exotic Capillary Tubes*.

In contrast to the standard capillary tube, an exotic capillary tube is a rotationally symmetric tube of variable cross section which if positioned correctly in a vessel of fluid possesses a continuum of equilibrium configurations. The controlling variables are the capillary constant and the contact angle. Lowering the tube slightly from its natural position causes the tube to completely fill up while raising the tube slightly forces the tube to drain out. Other surprising consequences follow. We will also discuss possible applications. (Received September 14, 2010)