1046-40-522 **Thomas J Osler*** (osler@rowan.edu), Mathematics Department, Rowan University, Glassboro, NJ 08028. *Morphing Lord Brouncker's Continued Fraction for pi into the product of Wallis.*

We show that both Brouncker's continued fraction for pi and the product of Wallis (both from 1656) are special cases of a more general formula of the form 4/pi = BW(n), where n = 0, 1, 2, 3, etc . When n = 0 the expression 4/pi = BW(0) is the original continued fraction of Brouncker. As n approaches infinity, the formula becomes the original product of Wallis. When the expressions BW(1), BW(2), BW(3), etc. are listed, we see Brouncker's continued fraction gradually "morph" into Wallis's product.

Similar results are shown for other continued fractions similar to Brouncker's such as the one given recently by Lange [1]. We also discuss the observation of Stedall [2] that a large class of continued fractions for pi were known to both Wallis and Brouncker, but this fact seems to have been overlooked by modern mathematicians.

[1] Lange, L. J., An Elegant Continued Fraction for pi , The American Mathematical Monthly, 106 (1999), pp. 456-458.

[2] Stedall, Jacqueline A., Catching Proteus: The Collaborations of Wallis and Brouncker. I. Squaring the Circle, Notes and Records of the Royal Society of London, Vol. 54, No. 3, (Sep., 2000), pp. 293 -316 (Received September 05, 2008)