1093-14-2 **Patrick Gerald Brosnan*** (pbrosnan@umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742-4015. *Normal functions.*

Normal functions are certain sections of torus bundles introduced by Poincare in 1910. They are interesting partially because they are geometric objects, which can be associated to cohomology classes. Lefschetz used this idea in 1924 to prove his (1,1) Theorem, which is the Hodge conjecture for surfaces. Unfortunately, while the normal functions considered by Lefschetz were essentially algebro-geometric objects, normal functions on higher dimensional varieties are complex-analytic, but not usually algebraic. I will explain this and work by several authors (including Schnell, Kato-Nakayama-Usui, Pearlstein and myself) which shows that normal functions arising in nature do behave in some ways like algebro-geometric objects. For example, the zero locus of such a function is algebraic. I will also explain an approach to the Hodge conjecture due to Green and Griffiths, which is based on normal functions. (Received June 26, 2013)