1018-01-235   **Shawnee McMurran*** (`smcmurra@csusb.edu`), CSUSB Mathematics Department, 5500 University Parkway, San Bernardino, CA 92407, and **James Tattersall** (`tat@providence.edu`). *Cartwright and Littlewood on Van der Pol's Equation.*

Van der Pol's experiments with nonlinear oscillators during the 1920s and 1930s stimulated mathematical interest in nonlinear differential equations arising in radio research. The problems caught the attention of British mathematicians M.L. Cartwright and J.E. Littlewood, initiating a collaboration that lasted over a decade. Cartwright and Littlewood's analysis of the Van der Pol equation and its generalizations led them to explore some interesting topological methods, including the development of a fixed point theorem for continua invariant under a homeomorphism of the plane. They were among the earliest mathematicians to apply Poincaré's transformation theory to the analysis of dissipative systems. Their research is among the earliest in large parameter theory and played a role in the development of the modern theory of dynamical systems and chaos theory. (Received March 07, 2006)