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George E Andrews* (gea1@psu.edu), 306 McAllister Bldg., Math Dept, Pennsylvania State University, University Park, PA 16802. *Dyson's Favorite Identity and Chebyshev Polynomials.*

During World War ii, Freeman Dyson and W. N. Bailey corresponded on generalizations of the Rogers-Ramanujan identities. Dyson found many such, and in his 1988 article, A Walk Through Ramanujan's Garden, named the Rogers-Ramanujan type expansion for the generating function of partitions into parts not divisible by 9 as his favorite. In this talk, we shall consider generalizations of Dyson's favorite identity related to the Chebyshev polynomials of the third kind. We obtain some surprising new identities as well as applications to 9-th order mock theta functions. (Received September 17, 2018)