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A Critical Examination of the Models Proposed to Account for Baryon-Antibaryon Segregation Following the Quark-Hadron Transition MOISHE GARFINKLE, Drexel University — The major concern of the Standard Cosmological Model (SCM) is to account for the continuing existence of the universe in spite of the Standard Particle Model (SPM). According to the SPM below the quark-hadron temperature ($\approx 150 \pm 50$ MeV) the rate of baryon-antibaryon pair creation from γ radiation is in equilibrium with rate of pair annihilation. At freeze-out ($\approx 20 \pm 10$ MeV) the rate of pair creation ceases. Henceforth only annihilation occurs below this temperature, resulting in a terminal pair ratio $B_+/\gamma = B_-/\gamma \approx 10^{-18}$, insufficient to account for the present universe which would require a pair ratio minimum of at least $B_+/\gamma = B_-/\gamma \approx 10^{-10}$. The present universe could not exist according to the SPM unless a mechanism was devised to segregation baryons from antibaryon before freeze-out. The SPM can be tweaked to accommodate the first two conditions but all of the mechanisms proposed over the past sixty years for the third condition failed. *All baryon-number excursions devised were found to be* ***reversible.*** The major concern of the SCM is to account for the continuing existence of the universe in spite of the SPM. The present universe could not exist according to the SPM unless a mechanism was devised to segregation baryons from antibaryon before freeze-out. It is the examination of these possible mechanisms that is subject of this work.

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