We give a neat characterization of the $d$-dimensional representation theory of the Unipotent Upper Triangular groups $U_n$ over a field $k$ of characteristic $p > 0$, in the case where $p$ is sufficiently larger than both $n$ and $d$. Specifically, so long as $p \geq \max(n, 2d)$, every $d$-dimensional representation of $U_n$ over $k$ is a commuting product of individual representations, one for each of the representation’s ‘Frobenius layers’, and each of which ‘look like’ a representation of $U_n$ in characteristic zero (in the sense that both are given rise to, via the Baker-Campbell-Hausdorff formula, by a representation of the Lie algebra of $U_n$). This analogy between the ‘generic’ representation theory of $U_n$ in positive characteristic and the representation theory of $U_n^\infty$ in characteristic zero is in fact functorial, in the sense that the analogy is applicable to morphisms between representations as well. (Received September 16, 2014)