962-13-32 **David E Dobbs*** (`dobbs@math.utk.edu`), Department of Mathematics, University of Tennessee, Knoxville, TN 37996-1300, and **Bernadette Mullins**, Department of Mathematics, Birmingham Southern College, Arkadelphia RoadBox 549001, Birmingham, AL 35254. *On the lengths of maximal chains of intermediate fields in a field extension.*

We study two invariants, $\nu(L/K)$ and $\lambda(L/K)$, arising from a field extension L/K. These are, respectively, the cardinal number of the set of fields contained between K and L; and the supremum of the set of cardinal numbers arising as lengths of chains of such fields. We next state three typical results. If L can be generated by one element over an infinite field K and $2 \leq [L:K] = n < \infty$, then $\nu(L/K) \leq 2^{n-2}+1$, with equality if L/K is Galois with the Klein four-group as Galois group. For each infinite cardinal number $\aleph$, there exists a field K such that if L denotes an algebraic closure of K, then $\lambda(L/K) = 2^{\aleph} = \nu(L/K)$. If L/K is any nonalgebraic finitely generated field extension, then $\lambda(L/K) = \aleph_0$. (Received June 26, 2000)