We study the subgroup $B_0(G)$ of $H^2(G, \mathbb{Q}/\mathbb{Z})$ consisting of all elements which have trivial restrictions to every Abelian subgroup of $G$. It was shown that the group $B_0(G)$ serves as the simplest nontrivial obstruction to stable rationality of algebraic varieties $V/G$ and coincides with geometric birational invariant of a smooth projective model $\tilde{V}/G$ for $V/G$, the so-called unramified Brauer group, introduced earlier by Artin and Mumford, where $G$ is a finite (algebraic) group and $V$ is a faithful complex linear representation of $G$. This fact reduces the computation of the Artin-Mumford invariant $V/G$ to a purely group-theoretical question. Bogomolov’s Conjecture states that for any finite simple group $G$, $B_0(G) = 0$. We have proved that $B_0(G)$ is trivial for finite simple groups of Lie type $A_\ell$. (Received September 24, 2005)