Let $K$ be a finite Galois extension of the rationals $\mathbb{Q}$ and let $U(K)$ denote the subgroup of the Brauer group $B(K)$ of $K$ consisting of those classes $[A]$ satisfying both (1) if the index of $A$ is $m$, then $K$ contains a primitive $m$th root of unity $\zeta$, and (2) if $\pi$ is a prime of $K$ and $\sigma \in \text{Gal}(K/\mathbb{Q})$ with $\sigma(\zeta) = \zeta^b$, then $\text{inv}_\pi[A] \equiv b \text{ inv}_\pi[\sigma(A)] \pmod{1}$. The structure of $U(K)$ and its relationship to the Schur subgroup of $B(K)$ have been studied in several previous papers by the author. The main result of the paper under review is the classification of the division algebra representatives of the classes of $U(K)$.

Let $D$ be a $K$-central division algebra of index $n$. The author shows that $[D] \in U(K)$ if and only if $K$ contains a primitive $n$th root of unity and $D$ is a cyclic algebra $(K(\sqrt[n]{\alpha}), \sigma, \beta)$ of a very special type. The precise condition that $D$ must satisfy involves the norm residue symbol and is too technical to be stated here. The author concludes by describing the underlying division algebras for the Schur subgroup of $\mathbb{Q}$ and for the 3-primary component of the Schur subgroup of $\mathbb{Q}(e^{2\pi i/3})$.

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