1154-11-1653 **Peter Illig**, **Rafe Jones*** (rfjones@carleton.edu), **Eli Orvis**, **Yukihiko Segawa** and **Nick Spinale**. *Newly Reducible Polynomial Iterates.*

A curious property of the minimal polynomial $f(x) = x^2 - x - 1$ of the golden ratio is that its second iterate is irreducible over $\mathbb{Q}$ but its third iterate is not; we say that f has newly reducible third iterate over $\mathbb{Q}$. Given integers d, n that are at least two, it is interesting to ask whether there exists $f \in \mathbb{Q}[x]$ of degree d with newly reducible nth iterate, or equivalently whether the absolute Galois group of $\mathbb{Q}$ acts transitively on the roots of the $(n-1)$st iterate of f but not on those of the nth iterate. We give results on this question, and study the collection of fields K for which infinitely many $f \in K[x]$ of degree d have newly reducible nth iterate. We pose several conjectures and questions. (Received September 16, 2019)