The space of monic centered complex cubic polynomials with marked critical points is isomorphic to $\mathbb{C}^2$. For each $n \geq 1$, the locus $S_n$ formed by all polynomials with a specified critical point periodic of exact period $n$ forms an affine algebraic set. We prove that $S_n$ is irreducible, thus giving an affirmative answer to a question posed by Milnor. This is a join work with Matthieu Arfeux (PUCV, Valparaiso).