In this essay, I reflect on the significance of ‘the turn to practice’ for contemporary philosophy of science. After briefly characterizing the practice turn and its inherent challenges, I discuss chemistry’s periodic law, drawing on its establishment in the nineteenth century to illustrate how attention to practice is relevant for understanding scientific representation, and considering the subsequent entrenchment of the periodic table within chemistry to argue for the inter-relation between representation and explanation. I suggest this example’s significance is best appreciated by taking a functional perspective on scientific explanation and conclude by highlighting philosophical gains enabled by attention to practice.