One-parameter additive subgroups have long played an important role in the representation theory of a reductive group $G$, starting with the root subgroups with respect to a maximal torus $T \leq G$. In characteristic $p$, more general one-parameter subgroups have been used to define interesting and useful invariants for $G$-modules. We will look at some recent developments in this area. (Received September 03, 2014)