1067-37-1881 **James Cannon**, **Mark Meilstrup*** (markmeilstrup@gmail.com) and **Andreas Zastrow**. *The period set of a map from the Cantor set to itself.*

Let f denote a map from the Cantor set C to itself. If $x \in C$ and if there is a positive integer m such that $f^m(x) = x$, then we call x a periodic point of f. If m is the least such integer, then we call m the period of x and write $p(x) = m$. We define the period set of f to be the collection $P(f) = \{p(x) : x \text{ is periodic}\}$.

Because the Cantor set C is the most flexible of all compact metric spaces with an interesting topology, we would expect the period sets of its self-maps to be completely unrestricted. We prove this to be the case provided that, in addition, one allows points that are not periodic.

However, if every point x is periodic, we show that a surprising finiteness condition is imposed on $P(f)$: namely, there is a finite subset B of $P(f)$ such that every element of $P(f)$ is divisible by at least one element of B. (Received September 22, 2010)