1046-01-369   **Adrian Rice*** (`arice4@rmc.edu`), Department of Mathematics, Randolph-Macon College, Ashland, VA 23005. *Elliptic Functions via Invariant Theory: Cayley's partial anticipation of the Weierstrass $\wp$-function.*

Although perhaps best remembered today for his contributions to matrix algebra and group theory, Arthur Cayley did not limit his research to these areas alone. One of his prime interests was the subject of elliptic functions, among the most vibrant areas of mathematics in the 19th century. His publications on this topic spanned over half a century and included a little known but interesting anticipation of an identity later made famous by Weierstrass. But what is particularly pleasing about Cayley's derivation of this identity is that it relied totally on his use of invariant theory, a subject that not only was his major area of research, but which also seems, on the face of it, to have little in common with the theory of elliptic functions. In this paper, we compare Cayley's derivation to the standard Weierstrassian approach, and discuss reasons for the obscurity of the former compared to the relative fame of the latter. (Received August 28, 2008)