1145-01-1017   **Brigitte Stenhouse*** (`brigitte.stenhouse@open.ac.uk`). *Understanding the differential in the unpublished work of Mary Somerville (1780-1872).*

In the early 19th century, the need to increase the acceptance and utilization of the differential calculus in Great Britain was keenly felt by a significant group of British mathematicians, who saw their contemporaries' reliance on the Newtonian fluxional calculus as a hindrance to research. Mary Somerville (1780-1872) was an active member of both the London- and Edinburgh-based communities of scholars who publicly advocated for the adoption of 'French analysis' (in a variety of its manifestations). In 1834, she completed a treatise on the differential calculus and its applications to geometry; with nomenclature borrowed from Lacroix, notation similar to that of Lagrange, and a conspicuous absence of Cauchian limits, the manuscript of this unpublished work provides a new and detailed insight into her conceptual understanding of a differential. Considering her central place in the British mathematical community, my talk will focus on the new perspective to be gained from this treatise, especially on the accessibility of, and contemporary attitudes towards, French ideas on the foundations of the differential calculus in 1830s Great Britain. (Received September 18, 2018)