NOTE ON GIBBS' PHENOMENON

BY C. N. MOORE

In my review of the third edition of volume I of Picard's *Traité d'Analyse*,* I took exception to Picard's claim that Du Bois-Reymond had discovered Gibbs' phenomenon. Concerning the question of priority in this discovery, Professor G. N. Watson has kindly called my attention to an article by H. Wilbraham.†

The phraseology of this paper indicates that Wilbraham was not quite clear in his own mind as to the distinction between the curve which is the limit curve of the approximation curves, $y = S_n(x)$, and the curve $y = f(x)$, which represents the limit function. However, his discussion applies to the former curve and furnishes a valid proof of the central features of Gibbs' phenomenon in the case of the particular series he discusses. He also points out that a similar discussion will establish an analogous behavior in the case of another special series. As Professor Watson has said in his letter to me: "It is a remarkable paper for so early a date."

At first thought it seems rather surprising that Wilbraham's paper, dealing with so interesting a property of Fourier's series, should have remained virtually unnoticed for a period of more than half a century, during which the theory of these series was being greatly enlarged. There is, however, a rather natural reason for this, the same reason why Gibbs' paper in NATURE at first attracted no general attention. Both Wilbraham and Gibbs restricted their discussion to particular series, and failed to point out that the property in question characterized the behavior of the Fourier's series corresponding to a very broad class of

* This BULLETIN, (2), vol. 30 (1924), pp. 554-556.

† CAMBRIDGE AND DUBLIN MATHEMATICAL JOURNAL, vol 3 (1848), pp. 198-201.