A Note on "Comparison of Electrolytic Resistance at Low and Radio Frequencies."

To

THE EDITOR,

INDIAN JOURNAL OF PHYSICS.

DEAR SIR,

May I draw your attention to the article of *J. A. C. Teegan*, M.Sc., A. Inst. P. in this Journal Vol. V, Part IV, page 463, October, 1930? In this article the author reports that he could find no change in the resistance of electrolytes with frequency. He quotes the similar results of *J. J. Thomson* and *J. J. Dowling*. After this, however, there has been a development the author does not mention. Starting from the interionic attraction theory of electrolytes it was possible to give indications about the mechanism and magnitude of such an effect and the concentrations and frequencies for which it could possibly be detected.

(*P. Debye und H. Falkenhagen*, Phys. Zeitschr., *29*, 121u. 401, 1928. Zeitschr. f. Elektrochem., *34*, 562, 1928.

H. Falkenhagen und J. W. Williams, Zeitschr. f. Phys. Chem., (A), *137*, 399, 1928; Chem. Rev., *6*, 317, 1929.)

The first experiment, stimulated by this theory, was carried out in my laboratory by *H. Sack* (Phys. Zeitschr., *29*, 627, 1928), the effect was proved to exist. Afterwards the following authors have confirmed and vastly extended these

results: *B. Brendel, O. Mittelstaedt und H. Sack*, Phys. Zeitschr., *30*, 576, 1929; *B. Brendel und H. Sack*: Phys. Zeitschr., *31*, 345, 1930; *H. Zahn*: Zeitschr. f. Phys., *51*, 350, 1928; *H. Rieckhoff*: Ann. d. Phys., (5) *2*, 577, 1929; *A. Deubner*: Phys. Zeitschr., *30*, 946, 1929; Ann. d. Phys., (5), *5*, 305, 1930. Therefore I think that the existence of a dispersion effect of electrolytic resistance and its connection with the interionic attraction theory is now beyond doubt.

PHYSIKALISCHES INSTITUT,
LEIPZIG,
November 17th., 1930.

Sincerely yours,
P. DEBYE.