

This result does not appear to me very probable.

6. I wish to defer a comparison between theory and experiments entering into more particulars until also the longitudinal phenomena: the conductivity for electricity and for heat, the change of these in the magnetic field and the longitudinal thermomagnetic effect have been investigated in this plate.

I think it probable that RIECKE's theory will have to be modified. Firstly also the variation in the magnetic field of the conductivity for electricity and heat might be included in it. The observations of these phenomena prove that the variation is much smaller for the thermal conductivity than for the electrical conductivity. This indicates, I think, that the theory wrongly ascribes the *whole* conduction of heat to the charged particles¹⁾. It would be desirable to try whether it is possible, taking this into account, to explain the phenomena with the assumption that the kinetic energy is the same for positive and negative charged particles, which seems at first sight more probable. At the same time it might perhaps be recommended to omit, in the deduction of the formulae for the four transverse phenomena, the condition that the velocities of the particles in the direction of the electromagnetic force should be zero, and to replace it by a similar condition as was assumed by me in the theory of the HALL-effect in electrolytes²⁾. Finally it will appear necessary to make some hypothesis in reply to the question, what happens with the charged particles when they reach the borders of the metal RIECKE himself indeed has observed³⁾, that it is not possible to formulate a complete theory of thermo-electricity with the aid of his hypotheses without accounting for the conditions at the junction of the two metals and forming an idea about the reciprocal influence of ponderable molecules and electric particles.

Physics. — *On the deviation of DE HEEN's experiments from VAN DER WAALS' law of continuity.* By Dr. J. VERSCHAFFELT
(Communicated by Prof. H. KAMERLINGH ONNES).

(Will be published in the Proceedings of the next meeting).

¹⁾ See my dissertation p. 114

²⁾ See communication of May 28, 1898, p. 48. Comm. N^o. 41, p. 6.

³⁾ § 8 of his paper.