

Physics. — *The Melting-Point Line of Helium and NERNST's Theorem of Heat.* By J. J. VAN LAAR. (Communicated by Prof. H. A. LORENTZ).

(Communicated at the meeting of October 29, 1927).

In connection with the considerations, published under the same title by Prof. KEESOM in these Proceedings, Vol. 30, p. 952, I wish to make only one more remark.

Of course I admit that the course of the melting-point line from $4^{\circ},2$ to $1^{\circ},2$ K., as it has been derived by KEESOM from his measurements, leaves room for the supposition that $\frac{dp}{dt}$ steadily decreases on further cooling, and that $\text{Lim.} \frac{dp}{dt} = 0$ would be in agreement with NERNST's theorem of heat.

In my preceding communication (These Proc. Vol. 30, p. 244) it was my intention to set forth that also another course of the melting-point line is not excluded at very low temperatures. I thought that I had reasons to expect such another course, and these reasons have not been affected by the further considerations and calculations to which Mr. KEESOM now subjects his measurements.

Indeed, Prof. KEESOM himself observes, that on approach of the absolute zero the last degree might bring surprises.

But there would not be any sense in continuing a discussion on this subject. We agree that only further experiments will be able to give certainty about the course of the melting-point line, still nearer to the zero point, and about the confirmation or non-confirmation of the conclusions which have been derived from NERNST's theorem of heat.

I hope to come back to the question concerning the specific heat of liquid Helium, advanced by Mr. KEESOM on p. 956 of these Proceedings, in a later communication; and as regards his remarks on my earlier criticism on PLANCK's *argumentation* (referring to the approach to zero of $\frac{dp}{dt}$ at $T=0$), I feel justified in fully maintaining what I wrote at the time.

Tavel sur Clarens (Suisse), October 1927.
