Note on the Effect of a Narrow Saw-cut in the Edge of a Conducting Strip on the Resistance of the Strip

This content has been downloaded from IOPscience. Please scroll down to see the full text.

1911 Proc. Phys. Soc. London 24 19

(<http://iopscience.iop.org/1478-7814/24/1/304>)

View [the table of contents for this issue](#), or go to the [journal homepage](#) for more

Download details:

IP Address: 216.165.126.139

This content was downloaded on 05/09/2015 at 10:02

Please note that [terms and conditions apply](#).

liquid in the corresponding canal into relative motion. (d) A set of steel bars for demonstrating the superior limit of audition; (e) a *ton-variator* of Dr. Stern, consisting of a resonant cavity of adjustable volume, excited by a gentle air-blast, and graduated to produce any tone between the frequencies of 200 and 400 per second; (f) an adjustable resonator, in which the size of the front opening is altered by use of an iris diaphragm; (g) a new phenomenon in resonance. If a tuning fork is introduced into a tubular resonator having a front orifice just wide enough to admit the two prongs, resonance is observed when the prongs are placed just in the opening. On inserting them deeper the sound ceases, but is again heard if they are inserted still further.

IV. *Note on the Effect of a Narrow Saw-cut in the Edge of a Conducting Strip on the Resistance of the Strip.* By Prof. CHARLES H. LEES, D.Sc., F.R.S.

IN connection with the Paper on the above subject which appeared in Vol. XXIII., p. 361 (1911), of the "Proceedings," Lord Rayleigh has called my attention to a Paper by Prof. Lamb, on "The Reflection and Transmission of Electric Waves by a Metallic Grating," which appeared in the "Proceedings" of the London Mathematical Society, Vol. XXIX., p. 523 (1898). In the first part of this Paper Prof. Lamb deals with certain problems in electrostatics, one of which is that of the lines of electrostatic force in the neighbourhood of a grating of parallel conducting strips. The solution of this problem is obtained by the aid of the Schwarzian transformation, $\cosh w = a \cosh z$, used by me in the above Paper, and Prof. Lamb points out that the solution also applies to the case of a conducting strip with a saw-cut in its edge. The use of the transformation for the solution of this problem had, therefore, been anticipated by Prof. Lamb. In a footnote to his Paper, Prof. Lamb points out that the transformation was already known to Prof. Sir J. Larmor in 1895, as he made it the subject of a question in the Mathematical Tripos, Part II.