wood, which in the arrangement of its vessels and medullary rays resembles so closely the genus *Platanus* that it most probably is *P. aceroides*, which occurs at Mackenzie River in the leaf beds.

More complete details of my investigation will be found in my paper on the "Fossil Woods of the Arctic Regions," in the forthcoming volume (VI) of the "Flora Fossilis Arctica," by Professor Heer.

III. "The Electrostatic Capacity of Glass." By J. Hopkinson, M.A., D.Sc., F.R.S. Received November 3, 1880.

(Abstract.)

In 1877 I had the honour of presenting to the Royal Society* the results of some determinations of specific inductive capacity of glasses, the results being obtained with comparatively low electromotive forces, and with periods of charge and discharge of sensible duration. In 1878 Mr. Gordon† presented to the Royal Society results of experiments, some of them upon precisely similar glasses, by a quite different method with much greater electromotive forces, and with very short times of charge and discharge. Mr. Gordon's results and mine differ to an extent which mere errors of observation cannot account for. Thus, for double extra dense flint glass I gave 10·1, Mr. Gordon 3·1, and subsequently 3·89.‡ These results indicate one of three things, either my method is radically bad, Mr. Gordon's method is bad, or there are some physical facts not yet investigated which would account for the difference. Two possible explanations have been suggested: 1st, possibly for glass K is not a constant, but is a function of the electromotive force. 2nd. When a glass condenser is discharged for any finite time, a part of the residual discharge will be included with the instantaneous discharge, and the greater the time the greater the error so caused. To test the first I measured the capacity of thick glass plates with differences of potential ranging from 10 to 500 volts, and also of thin glass flasks between similar limits; the result is that I cannot say that the capacity is either greater or less where the electromotive force is 5,000 volts per millimetre than where it is $\frac{1}{2}$ volt per millimetre. The easiest way to test the second hypothesis is to ascertain how nearly a glass flask can be discharged in an exceedingly short time. A flask of light flint glass was tested; it was charged for some seconds, discharged for a time not greater than $\frac{1}{17000}$ second, and the residual charge observed so soon as the

* "Phil. Trans.," 1878, p. 17.
† "Phil. Trans.," 1879, p. 417.
‡ "Report of British Association," 1875.

electrometer needle came to rest; the result was that the residual charge under these circumstances did not exceed 3 per cent. of the original charge, also that it mattered not whether the discharge lasted $\frac{1}{17000}$ second or $\frac{1}{80}$ second. These experiments suffice to show that neither of the above suppositions accounts for the facts.

I have repeated my own experiments with the guard ring condenser, but with a more powerful battery, and with a new key which differs from the old one inasmuch as immediately after the condensers are connected to the electrometer they are separated from it. In no case do I obtain results differing much from those I had previously published.

Lastly, a rough model of the five plate induction balance used by Mr. Gordon was constructed, but arranged so that the distances of the plates could be varied within wide limits. So far as instrumental means at hand admitted, Mr. Gordon's method was used. A plate of double extra dense flint and a plate of brass were tried. In the first, by varying the distances of the five plates, values of K were obtained ranging from $1\frac{1}{4}$ to $8\frac{1}{4}$, with the latter values from $\frac{1}{10}$ to 3. It is clear that the five plate induction balance thus arranged cannot give reliable results.

The explanation of the anomaly, then, is that the deviation from uniformity of field in Mr. Gordon's apparatus causes errors greater than anyone would suspect without actual trial. It is probable that the supposed change of electrostatic capacity with time may be accounted for in the same way.

IV. "The Cochlea of the *Ornithorhynchus platypus* compared with that of ordinary Mammals and of Birds." By URBAN PRITCHARD, M.D., F.R.C.S., Aural Surgeon of King's College Hospital. Received November 9, 1880. Communicated by Professor HUXLEY, Sec. R.S.

(Abstract.)

General Form of the Cochlea of the Duckbill or Ornithorhynchus.

This cochlea consists of a somewhat curved tube, about a quarter of an inch (6·3 millims.) in length, and one-twentieth of an inch (1·26 millim.) in diameter, projecting forwards from the cavity of the vestibule and embedded in the substance of the petrous bone. It is nearly horizontal, and is slightly curved outwards.

In section the tube is first oblong, with its greatest diameter from top to bottom, then somewhat triangular, and finally oval, with its greatest diameter from side to side. It terminates in a slightly enlarged rounded extremity, flattened from top to bottom.