It will be seen that the relation between appended weights and thereby increased resistances is not that of simple proportion. In this respect silver wires appear again to differ from copper wires. Some experiments made by Messrs Meik and Murray* having shown that the changes of resistance of copper wires, when stretched by weights, are directly proportional to the weights.

I am deeply indebted to Professor Wiedemann of Leipzig, in whose laboratory these experiments were performed, for the excellent apparatus which he kindly placed at my disposal, and for the advice and assistance with which he favoured me.

2. On the Defoliation of the Coniferæ. By Dr Stark.

3. On Diamagnetic Rotation. By George Forbes, Esq.,
M.A., F.R.A.S.

Faraday's discovery of the magnetic rotatory polarisation of light may be expressed in the following manner:—Let two electro-magnets, in the form of iron tubes, surrounded by helices of wire, be placed end to end, so that in the space between them the lines of force are very intense. Let a rod of dense glass be placed in this space, so that a ray of light may pass through the two tubes and the rod of glass. Let such a ray on entrance be plane-polarised, so that the direction of vibration is in a vertical direction. If the electro-magnet be now magnetised, the emergent ray will be polarised, so that its vibrations are inclined to the vertical at a small angle. The direction in which the line of vibration has been rotated is the same as the direction of the positive current in the helices.

The same effect might be produced without the aid of magnetism if the rod were rotated round the axis of the ray of light with great velocity. The rotation of the plane of polarisation

* Proc. Roy. Soc. Edin., Session 1869-70, p. 3.