

This occurred only at very low pressures when *A* acted as cathode and *D* as anode. The electrode *C* then slowly gained a very slight negative charge. Its amount, however, was not at all comparable with the charges obtained in the experiments previously described, and would be fully accounted for by a slight diffusion of negative ions through the opening in the ebonite plug.

6. SUMMARY OF RESULTS.

1. In passing a discharge through a vacuum tube, especially at low pressures, an electric conduction takes place along the surface of the glass which, unless specially guarded against, is apt to interfere with the study of true effects within the tube.

2. In the use of Faraday cylinders in vacuum tubes good earth connections are very essential.

3. Even very small openings in such cylinders exercise a disturbing influence.

4. Cathode rays, when allowed to fall upon Faraday cylinders, do not impress electrical conductivity upon the gas within unless the cylinders are made of metal thin enough to permit the rays to pass through.

The experiments were conducted in the Cavendish Laboratory and my thanks are due to Professor Thomson who proposed the investigation and offered many valuable suggestions throughout its progress.