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COMBINATION OF AN EXPERIMENT OF AMPÈRE WITH AN
EXPERIMENT OF FARADAY. BY J. J. TAUDIN CHABOT.

It was shown by Ampère* how a magnet can be made to rotate about its axis under the influence of a steady current, and Faraday† showed how the rotation of a magnet about its axis can give rise to a steady current‡.

By combining these two experiments we obtain a case of induction by steady currents: a steady primary current in the

circuit E or E_1 , gives rise to a steady secondary current in the circuit E_1 or E, a rotating magnet M forming the connecting link.

In order to show the effect, a brake is applied to the magnet M, a battery is inserted into the circuit E or E_1 and a galvanometer into the other circuit E_1 or E. On closing the circuit we observe that the suspended system of the galvanometer remains at zero; but, on removing the brake from the magnet, this begins to rotate and the galvanometer shows a deflection which increases continuously until the magnet turns quite freely. A brake is desirable which admits of a graduated application.

It appears to me that this experiment is worthy of notice in consideration of its illustrative character§.

Degerloch (Württemberg),
December 12th, 1898.

EXPERIMENTS WITH THE BRUSH DISCHARGE.

To the Editors of the Philosophical Magazine.

GENTLEMEN,

I have read with considerable interest the paper by Dr. Cook on the "Brush Discharge" in the January number of your Magazine. May I be allowed to call attention to some experiments made by Lord Blythwood about two years ago, which are of a very

* *Recueil d'Observations*, p. 177 (1821). Lettre à M. van Beck.

† 'Experimental Researches,' series ii., §§ 217-230 (1832); see also series xxviii. (1851).

‡ This phenomenon is generally known by the name of "unipolar" induction; "*autopolar*" induction (induction autopolaire, Gleichpolinduction), it seems to me, would be better; and therefore I propose this term. Then, in contradistinction, "*heteropolar*" induction (induction hétéropolaire, Wechseelpolinduction) can be used for signifying induction by both the poles alternately (dynamo &c.).

§ See *Phil. Mag.* vol. xvi. p. 428 (Oct. 1898), and p. 571 (Dec. 1898).