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On secondary batteries

J. Rouse

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of sufficient dissemination.—*Bull. de l'Acad. Roy. de Belgique*, sér. 3, tome ii. no. 7 (1881).

ON SECONDARY BATTERIES. BY J. ROUSSE.

In order to accumulate electricity so as to produce electric light or motive force, I have arranged several secondary batteries which differ notably from that of M. G. Planté.

(1) At the negative pole of the secondary battery I employ a palladium plate, which, during the electrolysis, absorbs more than 900 times its volume of hydrogen. At the positive pole I employ a plate of lead. The liquid electrolyzed is sulphuric acid diluted to 10 per cent. This element is very powerful, even when of small dimensions.

(2) Another secondary element, which has also given good results, is formed, at the negative pole, of a thin plate of sheet-iron: this absorbs more than 200 times its volume of hydrogen when it is electrolyzed in a solution of ammonium sulphate. The positive pole consists of a plate of pure lead coated with litharge, or with pure oxide, or white-lead, or with a mixture of all these substances. These metallic plates dip into a 50-per-cent. solution of sulphate of ammonia.

I have also employed, with some success, other similar combinations. For example:—

At the negative pole a plate of sheet-iron; at the positive pole a cylinder of ferromanganese. The liquid electrolyzed is sulphate of ammonia at 40 per cent.

I have remarked that, in general, for composing a secondary battery it is sufficient to place at the negative pole of the voltameter a metal which possesses the property of absorbing hydrogen when it is placed in a suitable solution. On the other hand, it is necessary to place at the positive pole a metal which absorbs oxygen and becomes peroxidized.—*Comptes Rendus*, Oct. 3, 1881, t. xciii. p. 545.

ELECTRICAL TESTING.

To the Editors of the Philosophical Magazine and Journal.

Electrician's Department, General
Post Office, Oct. 4, 1881.

GENTLEMEN,

In your issue for October last (no. 75, vol. xii.) I notice an article by Mr. Thomas Gray, "On the best Arrangement of the Wheatstone's Bridge for the Measurement of a particular Resistance," in which he says, "so far as I am aware, no one has considered in detail all the different cases." I would beg to point out that, in the second edition of my 'Handbook of Electrical Testing',*, published in the month of June of the present year, I have fully worked out the whole question (including the particular cases referred to by Mr. Gray), and I have done this without the use of the calculus; moreover I draw attention to the fact that, although the calculus method shows the conditions for obtaining an absolute maximum of sensitiveness, yet it does not show (as I have done) that this absolute condition may be very widely departed from without *practically* affecting the sensitiveness of the arrangement.

Yours faithfully, H. R. KEMPE.

* Published by Messrs. E. and F. N. Spon, Charing Cross.