LVII. On constructing electric columns

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that the nitric acid was not in such great excess had a sufficient quantity of *water* been employed, and that the muriatic acid is not of so much consequence in the formation of protoxide of antimony, since the whole of the eleven fluid ounces there prescribed might have been omitted.

I remain, sir,

Your obedient servant,

Long Acre, April 17, 1816.

JOS. HUME.

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"To Dr. Latham, &c. &c. &c."

"Sir,—A very simple and, I believe, effectual method of preparing tartarized antimony occurred to me yesterday, which I am anxious to present to you lest I should be anticipated unfairly by any other experimentalist.

"I shall not at present take up more of your time than to state the following sketch of the process.

"The common black sulphuret of antimony is boiled with nitrous acid *largely* diluted with water. This produces an oxide of antimony which, after being properly washed, is to be boiled with supertartrate of potass and distilled water. The operation is then to be finished in the usual manner by evaporation and crystallization.

"I have the honour to be, Sir, &c.

Long-Acre, Jan. 21, 1814.

"JOS. HUME."

LVII. On constructing Electric Columns. By B. M. FORSTER, Esq.

To Mr. Tilloch.

SIR, — I HAVE lately formed an *electric column*, by a process somewhat different from any hitherto adopted, I believe; and imagining that it may prove a very convenient one, I wish by means of your publication to make it known, hoping that those persons who are interested about this curious instrument will make experiments to determine the comparative power of a *column* formed by this method, and one made according to Mr. De Luc's original plan.

Not being able easily to procure *manganese* in a finely-powdered state, which I understand has been made use of instead of *plates* of *zinc*, I was desirous of trying the effect of *zinc* very finely powdered; and having obtained some of this substance pulverized, in order to get the very fine particles I sifted it through muslin, then mixed it with a solution of common glue and some moist sugar. This mixture I laid on the back of

Dutch-

Dutch-gilt embossed paper with a brush, by which method a triple disc was obtained, consisting of *Dutch metal* (copper), *paper* and *zinc*. Perhaps some one may be able to describe the exact method of making the *Dutch-gilt paper*; if so, I shall esteem it a favour to be informed of it. I understand that the metal is formed of copper principally, but of what other substance is unknown to me. It appears to me that a considerable advantage may be gained by the above-mentioned process, both in time and labour, as these plates or discs are much more easily punched out than plates of zinc, and the placing them in a column is also much more easily done on account of there being only one kind of disc, therefore less chance of a mistake is likely to occur in the disposition of them. If paper with *silver-leaf* laid on it, as described in *Philosophical Magazine*, vol. xxxv. p. 205 (March 1810), were used instead of *Dutch-gilt paper*, the effect would probably be stronger, and still more so if discs of *silvered paper* and discs of paper with powdered *zinc* were used, as the paper would then be more capable of imbibing moisture from the atmosphere than when both sides are coated with metal. As the gold-leaf electrometer, commonly used for experiments with the electric column, is rather an expensive one, and troublesome on account of the delicacy of the gold-leaves, it may not be unacceptable to many of your readers to be informed, that a metal-leaved electrometer of great sensibility may at a very reasonable cost be made, with a small lamp-glass fitted up with a *mahogany* top and base; the leaves are to be made of *Dutch metal* fastened to a thick piece of brass wire or slip of wood fixed into a piece of cork (which is to be glued on to the wooden cap); slips of *tin-foil* or *Dutch-metal* are to be pasted on two opposite parts of the glass cylinder as usual.

Electrometers made with *Dutch-metal* as above mentioned, are strongly affected by a person's finger being placed on them, if he suddenly rise from a chair (with a horse-hair seat) and stand upon a dry fire-hearth, the electric effects being produced by his woollen clothing rubbing against the horse-hair chair.

A dry fire-hearth being found to be a *very good* insulator, I frequently make use of it instead of a stool with glass legs. Should it be found that *zinc* dust laid on, as in the foregoing account, does answer the purpose desired; this method may be worthy of the attention of the philosophical-instrument-makers, as they might probably find a sale for this (as it may be called) *electrical paper*. If *zinc* could be procured in as thin leaves as silver or *Dutch-metal*, it probably would be better for *electric columns* than *zinc* dust.

April 17, 1816.

B. M. FORSTER.

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