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XXIII. *On the pretended Priority of Mr. STEVENSON'S Safe-lamp. By W. P. KNIGHT, Esq.*

To Mr. Tilloch.

SIR, — IN my letter written to you last month, on the very absurd claim advanced by Mr. Brandling, I stated it as my opinion, that with respect to dates so near each other as those quoted by Mr. Hodgson and Mr. Brandling, it was difficult to draw any inference as to priority. In perusing, however, the evidence with more attention, I feel it necessary to alter my opinion. I had turned over the leaves of Dr. Thomas Thomson's Journal, and in his account of the Royal Society for the last year, I found in the notice of Sir H. Davy's papers no mention made of either tubes or safe apertures. On mentioning this to a Fellow of the Royal Society who was present when these papers were read, he informed me that nothing could be more inaccurate than Dr. Thomson's account.

That in the first paper, read Nov. 9, it was distinctly stated that explosion from fire-damp would not pass through small tubes, and that small apertures were insisted upon in the safe-lamp; and that the great object of the second paper, read Nov. 16, was to enforce the use of tubes or safe apertures. The same gentleman mentioned that he had seen a lamp fed with air by four safe tubes in Sir Joseph Banks's library, in the middle of November. On referring back to the Philosophical Magazine, I find safe apertures and tubes distinctly mentioned as forming leading circumstances in Sir H. Davy's papers.

Now the Rev. John Hodgson states, that he publicly communicated to various persons Sir H. Davy's discovery, that explosions from fire-damp would not pass through tubes of small diameter, on Nov. 2d and 6th, that Sir H. Davy had made a safe-lamp, and that this was mentioned to one of Mr. George Stevenson's employers; yet Mr. Stevenson shows no lamp with small tubes till Nov. 21. Before this time he had made his experiments with a tube and a slider. Will any person believe that Mr. G. Stevenson did not endeavour to profit by what he had heard Sir H. Davy had done? Besides, if he had an independent claim, why was it not made at this time? When Mr. G. Stevenson's third lamp with holes was brought forward Dec. 5th; this was stated to be the safe-lamp* that he had made before Sir H. Davy's researches were published. But I must conclude so evident a case.

Can Mr. W. Brandling be serious, or is he not attacking iro-

* See Phil. Mag. for December 1816.

nically Dr. Clanny, and J. H. H. Holmes? Dr. Clanny in his paper on the original safe-lamps, the steam safety-lamps, and the gas-light lamp, states boldly that he was acquainted with the circumstance that explosion would not pass through small tubes; and J. H. H. Holmes, in a libellous advertisement published in the Scotch and Newcastle papers, accused Sir H. Davy of stealing every thing from Dr. Clanny, except the Doctor's principle of security. I am, sir, respectfully yours,

Chelsea, Jan. 25, 1817.

W. P. KNIGHT.

XXIV. *On the Laws of Terrestrial Magnetism in different Latitudes.* By M. BIOT; with Notes by T. S. EVANS, LL.D. of Christ's Hospital.

[Concluded from p. 16.]

AFTER having thus explained all that is at present known, on the direction of these two magnetic forces in different parts of the earth, it remains for us to consider their *absolute intensity*. This has been much less attended to than the variation and dip; which, no doubt, arises from its being more difficult to measure with exactness. In this department, I know of no accurate observations except those that M. Humboldt has made in his celebrated Voyages and Travels, and those which M. Rüssel made in the expedition of Admiral d'Entrecasteaux*.

The

* It has already been mentioned, that the first person who noticed the number of vibrations which a needle makes in a stated time, was our ingenious countryman, Mr. George Graham, whose experiments are related at full length in the Philosophical Transactions for 1723, No. 389; or, the old Abridgment, vol. vi. part ii. page 280. He began to observe, when the needle vibrated 10° on each side of zero. The following are the times in which 100 vibrations were performed.

	Vibra- tions.	Time.		Vibra- tions.	Time.
1723. April 1	{ 50	3' 2''	1723. May 20	{ 50	3' 11''
	{ 50	2 45		{ 50	3 1
2	{ 50	3 3	repeated	{ 50	2 38
	{ 50	2 43		{ 50	2 23
3	{ 50	2 52	do.	{ 50	2 38
	{ 50	2 39		{ 50	2 20
repeated	{ 50	2 53	21	{ 50	2 41
	{ 50	2 35		{ 50	2 28
4	{ 50	2 54	23	{ 50	2 40
	{ 50	2 30		{ 50	2 27
28	{ 50	2 48	25	{ 50	2 41
	{ 50	2 16		{ 50	2 30
			27	{ 50	2 41
				{ 50	2 28

The