is a series of stories, told with raciness and touches of sarcasm and humour, of the many impostures which have been perpetrated on the public by those who knew how to turn to account some of the results of science. Of course spiritualism comes in for a large share of notice, while the real miracles of science are pleasantly described in one or two concluding chapters. The book is altogether a very curious one, and evidences considerable research in out-of-the-way corners on the part of its author.

On Foot in Spain; a Walk from the Bay of Biscay to the Mediterranean. By J. S. Campion. Illustrated by Original Sketches. (London: Chapman and Hall, 1879.)

MAJOR CAMPION has already proved his power as a charming *raconteur* in his "On the Frontier," and although in artistic finish and exciting incident the present work is not equal to the former, still it is a well-told story of a free and easy walk through a comparatively little-known country. Major Campion did not encumber himself with more baggage than he could carry himself, and with his gun and genial manners and tact he got on without difficulty wherever he went. We should think his work is likely to increase the number of pedestrian tourists in Spain, about the obstacles to travel in which many delusions exist. Major Campion has much to tell in his own way about the places and people he saw, and every now and then we are glad to stumble on a scrap of information about the geology or natural history of the country. His book ought to have many readers.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

Leibnitz's Mathematics

Tempora mutantur, et nos, &c., seems to hold true for Dr. Ingleby, though not for myself, in this matter. His tone has completely changed since December 4, 1871; and he now puts "scientist" (*in quotation marks*) where you had written "scientific man," although in his former letter he said he "hated" the far less obnoxious word "physicist."

That I did not reply to his former letter was mainly because he said that "the question is not susceptible of *proof* until the Council of the Royal Society, who so grossly disgraced themselves in 1712, shall do" a certain "simple act of justice." Recourse to the spiritualists is our only chance in such a matter, and these have now an admirable opportunity for demonstration of their claims.

All I said of Leibnitz was "who, I fear, was simply a thief as regards mathematics." This was completely justified to my mind at the time, partly by my own reading, mainly by some curious documents which Sir David Brewster once showed me. These appeared to me to leave no doubt whatever as to the dishonesty, not only of Leibnitz, but of several of those who have been, at different times, connected with his side of the dispute.

Your allusion to Gregory's series seems to me to bring in no "collateral question" but a very important central one:—it seems to go, in fact, to the root of the matter. For, if Leibnitz was dishonest, this was probably his first (known) offence. Mr. Bottomley's apt quotation looks like a desperate attempt at justification of conduct which the writer felt to be, to say the least, suspicious.

Instead of appealing to the Royal Society Council of 1712, Dr. Ingleby should demand from the proper authorities the publication of that conclusive MSS. of Leibnitz for which Dr. Sloman *asked in vain* in 1858.

P. G. TAIT

The Magnetic Storm of May 14, 1878, Observed in North America

NOTICING in NATURE (vol. xviii. p. 617, and vol. xix. pp. 148, 173, 220) references to the "magnetic storm" of May 14, 1878, I have had prepared by Mr. C. A. Schott, the assistant having direction of our magnetic observatory at Madison, Wisconsin, the inclosed memoranda relative to observations made at that point, as an item of interest to your readers, illustrating the general character and almost simultaneous action of that great magnetic disturbance.

C. P. PATTERSON,
Supt. Coast and Geodetic Survey

Washington, January 6

THE extensive magnetic disturbance of May 14, 1878, of which accounts have been given in NATURE, vol. xviii. pp. 617, 641, 668, and which was observed in China, Australia, and England, was also making its record in North America at our magnetic observatory, established at Madison, Wisconsin, in the winter of 1876–77. This observatory is in latitude 43° 4′ 29″·5, and in longitude 5h. 57m. 36·5s. W. of Greenwich; in it are mounted a set of Brooke's magnetographs, and daily photographic traces of the changes in magnetic declination and in the horizontal and vertical forces have been produced since March, 1877, and are intended to be kept up for some years. The declination traces for several days preceding the 14th were normal, but about midnight, May 13–14, a series of disturbances commenced consisting in part of some large oscillations to the eastward and westward, and in part of a great number of small and rapid oscillations. The characteristic features of the trace may be given as follows:—

	Madison mean time.	Greenwich mean time.
	h. m.	h. m.
The disturbances in *declination* commenced about	14th, 0 00 A.M.	14th, 5 58 A.M.
A principal westerly[1] extreme reached...	,, 1 05 ,,	,, 7 03 ,,
,, easterly ,, ,, ...	,, 2 36 ,,	,, 8 34 ,,
Range of motion 16′·5; after this a series of smaller oscillations continue to past noon: a maximum westerly position is reached about	,, 0 16 P.M.	,, 6 14 P.M.
And an easterly extreme at	,, 0 53 ,,	,, 6 51 ,,
Extreme westerly deflection at	,, 3 26 ,,	,, 9 24 ,,
A sharp motion to eastward commences at	,, 5 40 ,,	,, 11 38 ,,
A principal easterly extreme reached at	,, 6 24 ,,	15th, 0 22 A.M.
Range of motion of principal disturbance 3′·7.		
There is also a westerly extreme about...	,, 7 10 ,,	,, 1 08 ,,
And an easterly extreme about	,, 9 16 ,,	,, 3 14 ,,
After 10 P.M. the irregularities gradually subside.		
Last extreme easterly position	15th, 1 10 A.M.	,, 7 08 ,,

It will be noticed that at the Greenwich Observatory the storm commenced on May 14 at 6h. 5m. A.M., at Stonyhurst Observatory at 6h. 4m., at Ti-ka-wei, near Shanghai, also at 6h. 4m. (G. T.), and at Melbourne, supposed at 6h. 20m.; the storm may therefore be taken as simultaneous at these places. At Greenwich the north end of the needle moved eastward between 6 and 9 A.M., but at Madison the general motion was westerly. Again, the sharp deflection commencing at 5h. 40m. Mad. T. (11h. 38m. P.M. G. T.) was to the *eastward* at Madison and to the westward after 11h. 45m. at Greenwich, thus deflecting the magnets in opposite directions.

	Madison mean time.	Greenwich mean time.
	h. m.	h. m.
The northern component of the *horizontal* force was sharply affected at Madison, the force diminishing at ...	14th, 0 05 A.M.	14th, 6 03 A.M.
The disturbance continued, but between 2.30 and 7.30 A.M. The trace is too indistinct to be read; the small oscillations continue to about 11h. 45m., when they become superseded by a series of larger waves culminating in a maximum extreme at ...	,, 2 30 P.M.	,, 8 28 P.M.
And in a minimum at	,, 3 58 ,,	,, 9 56 ,,
The large disturbances continue till about 10h. 20m. P.M., having reached a maximum extreme about	,, 4 50 ,,	,, 10 48 ,,
And a minimum extreme at	,, 9 03 ,,	15th, 3 01 A.M.

Range between max. at 2h. 30m. and min. at 9h. 3m $= \frac{1}{164}$ of the horizontal force, nearly.

In the Greenwich account it is stated "The first start in the trace of the declination magnet at 18h. 5m. (A.R.) is most distinct;" now, within two minutes of this time occurs the first and sharpest deflection in our horizontal force trace at Madison, thus

[1] Referring to the end of the magnet.

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